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MILITARY AFFAIRS

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CONTENTS

MILITARY-POLITICAL ISSUES

Review of Book on Weapons of Mass Destruction (V. Baburov; SOVIET MILITARY REVIEW, Jun 80).....	1
New Books: Brief Reviews (SOVIET MILITARY REVIEW, Jun 80).....	4

MINISTRY OF DEFENSE AND GENERAL STAFF

Table of Contents of 'SOVIET MILITARY REVIEW' No 5, May 1980 (SOVIET MILITARY REVIEW, May 80).....	6
Table of Contents of 'SOVIET MILITARY REVIEW' No 6, June 1980 (SOVIET MILITARY REVIEW, Jun 80).....	8
Educational Role of Soviet Armed Forces (M. Sobolev; SOVIET MILITARY REVIEW, Jun 80).....	9

WARSAW PACT AND GROUPS OF FORCES

Warsaw Pact 25th Anniversary (G. Sredin; SOVIET MILITARY REVIEW, May 80).....	13
Development of Socialist Cooperation (A. Orlov; SOVIET MILITARY REVIEW, May 80).....	18

ARMED FORCES

Principles of Soviet Military Organization (V. Novikov, N. Kuznetsov; SOVIET MILITARY REVIEW, May 80).....	21
Rights of Servicemen Defined (L. Fedorov; SOVIET MILITARY REVIEW, Jun 80).....	24

Political, Military Leadership Principles	
(N. Gusev; SOVIET MILITARY REVIEW, Jun 80).....	27
Diver Training Described	
(N. Bubelev; SOVIET MILITARY REVIEW, Jun 80).....	30
Physical Training Methods	
(Yu. Demyanenko; SOVIET MILITARY REVIEW, Jun 80).....	32
AIR FORCES	
Flight Instruction Methods	
(N. Debda; SOVIET MILITARY REVIEW, May 80).....	35
Maintenance of Aircraft Oxygen Equipment	
(V. Gorlov; SOVIET MILITARY REVIEW, May 80).....	37
GROUND FORCES	
Motorized Rifle Battalion Training	
(V. Kotikov; SOVIET MILITARY REVIEW, May 80).....	39
Motorized Infantry Heliborne Exercise	
(Yu. Chernyshov; SOVIET MILITARY REVIEW, May 80).....	42
Planning, Conducting Tactical Exercises	
(A. Akimov; SOVIET MILITARY REVIEW, May 80).....	45
Role of Advanced Detachments	
(V. Korotkov; SOVIET MILITARY REVIEW, May 80).....	48
Armored Personnel Carrier Described	
(D. Ryazantsev; SOVIET MILITARY REVIEW, May 80).....	51
Commander, Staff and Troop Control	
(P. Simchenkov; SOVIET MILITARY REVIEW, Jun 80).....	54
Motorized Infantry Combat Training	
(I. Tikhonkov; SOVIET MILITARY REVIEW, Jun 80).....	57
Field Maintenance of Armored Vehicles	
(N. Shevchenko; SOVIET MILITARY REVIEW, Jun 80).....	60
Review of Book on Armored Warfare	
(A. Tonkikh; SOVIET MILITARY REVIEW, Jun 80).....	62
NAVAL FORCES	
Naval Artillery Training	
(P. Sokolnikov; SOVIET MILITARY REVIEW, May 80).....	63

Northern Fleet Command Training (V. Kruglyakov; SOVIET MILITARY REVIEW, Jun 80).....	65
Aviation ASW Exercise Reviewed (C. Baldenkov; SOVIET MILITARY REVIEW, Jun 80).....	69
MILITARY SCHOOLS AND ACADEMIES	
Biographical Data on Chemical Expert Knunyants (N. Yelshin; SOVIET MILITARY REVIEW, Jun 80).....	71
PERCEPTIONS, VIEWS, COMMENTS	
USSR and India Relationship (V. Yefremov; SOVIET MILITARY REVIEW, May 80).....	74
Book Review: 'Bundeswehr and NATO' (V. Lavreychuk; SOVIET MILITARY REVIEW, May 80).....	77
Comments on U.S. Strategy and Tactics (N. Nikitin; SOVIET MILITARY REVIEW, Jun 80).....	79
Comments on U.S. Arms Exports (A. Markov; SOVIET MILITARY REVIEW, Jun 80).....	82
Comments on U.S. Indian Ocean Plans (V. Yefremov; SOVIET MILITARY REVIEW, Jun 80).....	85
German Source on Automation in Soviet Armed Forces (Erich Sobik; SOLDAT UND TECHNIK, Feb 81).....	88

MILITARY-POLITICAL ISSUES

REVIEW OF BOOK ON WEAPONS OF MASS DESTRUCTION

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 52-53

[Book review of "WEAPONS OF MASS DESTRUCTION AND ENVIRONMENT", by V. Baburov]

[Text]

IN THE SET of measures for transition to real disarmament the Soviet Union assigns paramount importance to the prohibition of mass destruction weapons. Major Soviet initiatives of the past years were aimed at achieving this goal; they included proposals to start talks on ending the production of nuclear weapons of all types and gradual reduction of their stockpiles up to their complete liquidation, and also on banning the production of new types and systems of mass destruction weapons.

Of definite interest in this connection is the book *Weapons of Mass Destruction and the Environment** written for the Stockholm International Research Institute on World Problems by Arthur Westing, an American scientist and senior research fellow of the said Institute.

In the preface to the book, Frank Barnaby, director of the Institute, emphasises how important it is for humanity's future welfare to eliminate from the arsenals of the world nuclear, chemical, biological and other mass destruction weapons.

For his part, the author of the research warns of the possibility, in certain circumstances, that new types of these weapons may appear alongside the already known means of mass destruction. He notes that the inhuman aspects of weapons of mass destruction are widely recognised and that this explains the unceasing efforts by many official and public quarters to prohibit or limit their use. At the same time he considers it necessary to draw the attention of the public to the damage these weapons can cause to the natural environment.

A. Westing analyses at length the ecological after-effects of a nuclear attack. Speaking about the fires that start immediately after a nuclear explosion, he says they may appear again in a vegetation zone, which becomes combustible as a result of exposure to nuclear radiation. As regards the after-effects of the various types of different radiations he mentions, alongside the known gamma radiation, the less penetrating beta rays, whose baneful effect on the natural environment has been established in recent years. In author's opinion

* "Weapons of Mass Destruction and the Environment." SIPRI, Taylor Francis Ltd., London, 1977, 90 pp.

the fatal zone for all living beings, formed as a consequence of nuclear radiation, is extensive as a result of explosions either in the air or on the earth's surface, but it is especially great in the latter case. He also concludes from new data that if nuclear weapons were to be used it would take many years, even decades for the ecological rehabilitation of a number of areas. He concludes his argument by stating that nuclear weapons should be removed from the military arsenals of the world. The author stresses that, even without war, the nuclear arms drive is extremely perilous. Not only are the natural resources squandered on building up the nuclear arsenal but, as a sequel, the land is polluted with a fatal quantity of radio-active isotopes when nuclear weapons are produced or exploded.

The book gives a short history of both the chemical and biological weapons and examines the possible ecological consequences of the use of such weapons of war. Moreover, it stresses that chemical or biological agents could be targeted at enemy manpower, livestock and harvests, at ecological systems and even military equipment. The production, at least of some agents, is not so expensive as compared to other types of weapons and in proportion to their after-effects. Besides, chemical and biological ammunition weighs less than the conventional, which is not the least of the factors from the point of view of military supplies. The scale of production of some agents, their accumulation and even testing could comparatively easily be kept a secret. The effect of a number of agents is felt in a few hours, maybe days. Speaking of the ecological after-effects of such death-dealing chemicals as organophosphorus combinations, the author stresses that their use, especially over an area of hundreds of hectares, would immediately lead to an ecological catastrophe.

A bacteriological war, as follows from data cited in the book, could lead to a considerable weakening of the ecological system for an indefinite period of time.

A special place in the book is devoted to geophysical weapons and means of affecting the environment. It analyses the ecological effects of the use of such weapons, with special stress, moreover, on the possible use of conflagrations, inundations and artificial rains in warfare.

Among the potential means of geophysical warfare the author mentions various manipulations with electric particles in the ionosphere or troposphere, assuming that the aim of such a form of offensive warfare would be to affect radio, radar or other electromagnetic waves used by the enemy, with the purpose of hindering his communications, long-distance detection systems, navigation and training of rockets. Attempts of this kind, it is said in the book, were made by the USA in Vietnam to obstruct the use of the DRV radars for training anti-aircraft rockets. For this purpose various chemicals were sent to the troposphere.

Other powerful means of geophysical war now being devised are examined in the book. Thus, there is mention in the US press of the development of the "window" method in the ozone belt over the enemy's territory, initiation of volcano eruptions and physical or chemical ways of affecting the waters of the ocean with the aim of upsetting the acoustic or electromagnetic qualities of the waters and thereby creating obstacles in the enemy's underwater communication system.

The following statement, cited in the book, of a representative of the US Defence Department on the tasks facing one of the Navy experimental stations, makes one realise the danger of the geophysical war

plans now being developed: "The work, mainly, is aimed at offering the armed forces an opportunity to transform the environment to their own advantage or to the disadvantage of the enemy. We consider the weather to be our weapon." Arthur Westing notes, in particular, that if an area usually not exposed to fires could be set on fire with the help of advanced incendiary installations, including corresponding preliminary chemical processing, the ecological after-effects could be very serious. He observes that such techniques are already being developed.

The author is convinced that geophysical changes for war purposes and analogous influencing of the natural environment could cause a series of acute ecological and social problems both immediately and after some time.

The book ends with the publication of a number of multilateral, though yet not universal, agreements which include some limitations on the use of mass destruction weapons. The partial character of the so far coordinated measures

with regard to such weapons leads the author to conclude as to the urgent necessity still remaining to achieve an agreement on the universal banning of the development, accumulation and use of nuclear and other mass destruction weapons.

The author of the research warns against the use of increased technological means of influencing nature, because it is fraught with catastrophic after-effects on the scale of the whole planet.

It is well known that the Soviet Union always came out for normalisation of the international situation and the general political climate in inter-state relations. Activation of public movements for peace and disarmament, assertion of the principles of equal security and mutual respect of the interests of the sides are those main conditions which will considerably promote the solution of major problems connected with restricting the arms build-up and protecting the environment.

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MILITARY-POLITICAL ISSUES

NEW BOOKS: BRIEF REVIEWS

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 p 60

[Text]

LENIN'S WORKS BY PROGRESS PUBLISHERS

V. I. Lenin. On the Great October Socialist Revolution. (Collection.) Moscow, 1979, 384 pp.

The collection contains works and articles of V. I. Lenin dealing with the character, motive forces and the world-historic significance of the Great October Socialist Revolution. It shows the historic role of the Marxist Party as organiser and leader of the revolutionary masses.

V. I. Lenin. Where to Begin. Party Organisation and Party Literature. The Working Class and Its Press. (Collection.) Moscow, 1979, 48 pp.

In the articles included in this collection Lenin exposes the class nature of the press in capitalist society.

Defining the tasks of the workers' press, Lenin says that it is called upon to serve not the "upper ten thousand but the millions and tens of millions of working people — the flower of the country, its strength and its future."

V. I. Lenin. On Soviet Socialist Democracy. (Collection.) Moscow, 1979, 176 pp.

The works included in this collection reveal the essence of the dictatorship of the proletariat as the highest type of democracy in a class society and underscore the fundamental contrast between bourgeois and proletarian democracy.

V. I. Lenin. On Britain. (Collection.) Moscow, 1980, 480 pp.

The collection comprises articles and speeches by Lenin on the British working-class movement and works in which he discloses the essence of British imperialism and unmask the policy it pursued in India and other colonies. Several articles deal with the Irish people's struggle for freedom. Lenin's appraisal of prominent British political leaders and his assessment of various stages of English history will undoubtedly interest the reader. The collection contains works Lenin wrote in the 1890s and articles, speeches and letters relating to the last years of his life.

V. Semyonov. Nations and Internationalism. Moscow, 1980, 336 pp.

This book deals with the forma-

tion and development of nations and ethnic groups. Basing himself on an abundance of facts the author examines the most important problems of world history: processes of national consolidation in West European countries, among the Slav peoples, in Africa, Asia, and Latin America; the evolution of nations under capitalism, colonial expansion, and also the establishment and development of anti-colonial and anti-imperialist movements. The author shows how the ideas of the Great October Socialist Revolution and achievements in the building of socialism influence the growth of the national-liberation movement in the world today.

Much attention is given in the book to the struggle of the forces of internationalism and democracy

against fascism and reaction during the Second World War.

V. Mamontov. Problems of Disarmament. History and Modern Times. Moscow, 1980, 160 pp.

This book by a prominent Soviet scholar gives a comprehensive analysis of the Soviet state's historic struggle for disarmament, beginning from the first, Lenin Decree on Peace (1917) to our days.

The author dwells in detail on Soviet proposals for disarmament, prohibiting nuclear weapons, limiting strategic arms, and preventing a nuclear holocaust. This study will no doubt give readers abroad a better understanding of the whole set of disarmament problems.

NEW BOOKS FROM NOVOSTI PRESS AGENCY PUBLISHING HOUSE

B. Gorbachev. The Socialist Community. Moscow, 1980, 30 pp.

The socialist community presents international relations of a new kind, based on full equality of rights and independence of states and nations. The essence of the socialist community lies in a suitable combination of national and international interests.

The programme aims of the socialist countries' foreign policy are the key issues facing mankind: prevention of nuclear war, achievement of disarmament, abolition of inequality and the affirmation of the spirit of cooperation for the benefit of all the peoples of the world. The book throws light on all these questions.

Disarmament: Soviet Initiatives. (A Collection of Documents.) 196 pp.

The problem of disarmament is the most essential task of our time. In the postwar period alone the

Soviet Union has put forward more than 100 proposals to resolve it. But particular activity in this direction has been displayed after the adoption of the Peace Programme by the 24th CPSU Congress.

This collection of documents includes the Soviet proposals for stopping the arms race and for disarmament made in the period following the 24th CPSU Congress. It also gives the texts of international treaties and agreements on questions of disarmament concluded on the basis of Soviet proposals.

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MINISTRY OF DEFENSE AND GENERAL STAFF

TABLE OF CONTENTS OF 'SOVIET MILITARY REVIEW' NO 5, MAY 1980

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 p 1

[Text]

C O N T E N T S

Reliable Bulwark of Peace by G. Sedin	2
The Birth of Brotherhood by A. Orlov	9
Coeval of the Revolution by A. Mineyev	12
Leninist Principles of Soviet Military Construction by V. Novikov, N. Kuznetsov	15
Home-Front Exploit by M. Kurev	18
A Society of Advanced Culture by V. Borisov	21
Attack from March Column by V. Kotikov	24

A Tactical Airborne Landing by Yu. Chernyshev	27
Everyday Frontier Life	29
Pages of History	31
A Tactical Exercise With Field Firing by A. Akhmedov	34
Advanced Detachment by V. Korotkov	36
Artillery in Naval Action by P. Sokolnikov	38
Instructor's Skill in Method by H. Dabde	41
Armoured Personnel Carriers by D. Ryzantsev	43
Aircraft Oxygen Equipment by V. Gorlov	45
Political Workers by A. Krupotov	46
The Main Army Theatre by O. Silim	49
The CMEA and the Developing Countries by O. Bogomolov	52
A Factor of Peace and Stability by V. Yefremov	55
The Best-Educated Generation	57
The Bundeswehr and NATO by V. Lavaychuk	58
A Friend Among Enemies, an Enemy Among Friends by E. Volodarsky, M. Mikhailov	59
The Ring Tests Characters by M. Grigoryev	63

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MINISTRY OF DEFENSE AND GENERAL STAFF

TABLE OF CONTENTS OF 'SOVIET MILITARY REVIEW' NO 6, JUNE 1980

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 p 1

[Text]

C O N T E N T S

Educational Role of the Soviet Armed Forces by M. Sobolev	2	"Study, Work and Search..." by M. Yelshin	36
The Party Three Programmes by V. Ismailov	6	Space Flight Diet by I. Popov	38
The Commanding Officer's Tactical Skills by V. Kruglyakov	9	Aggressors' Strategy and Tactics by M. Nikitin	40
Tackling Over the Ocean by G. Baldenkov	13	The Second World War and the National-Liberation Movement by V. Aiderov	42
The Commander and the Staff by P. Simchenkov	17	Dangerous Business by A. Markov	45
Initiative in Battle by I. Tikhonov	20	The Pentagon's Plans for the Indian Ocean by V. Yefremov	47
The Pennant by A. Ignatyev	22	Klimant Voroshilov by D. Mikhailov	50
Rehabilitation of Armoured Equipment in the Field by M. Shevchenko	25	Weapons of Mass Destruction and the Environment by V. Baburov	52
Fully-Fledged Citizen by L. Fyodorov	27	A Friend Among Enemies, an Enemy Among Friends by E. Volodarsky, N. Mikhailov	56
Unity of Political and Military Leadership by M. Gusev	29	For Better Combat Training by Yu. Demyanenko	61
Divers by M. Subolev	34	The Ascent of Nelli Kim by G. Viktorov	63

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MINISTRY OF DEFENSE AND GENERAL STAFF

EDUCATIONAL ROLE OF SOVIET ARMED FORCES

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 2-6

[Article by Col Gen M. Sobolev, deputy chief of the main political directorate of the Soviet Army and Navy: "Educational Role of the Soviet Armed Forces"]

[Text]

IN COPING with the vast tasks of peaceful construction the Communist Party and its Central Committee attach special importance to the education of Soviet people, to moulding in them deep ideological convictions, an active position in life and a conscious attitude towards their civic duty. The Soviet Armed Forces help the Soviet socialist state to accomplish vital educational tasks. They are not only a school of fighting skills. At the same time they are an effective school of ideological and ethical education, of labour and physical steeling.

Figuratively speaking, the Soviet Armed Forces are a university which practically all boys have to go through. The age of active military service (18-20) is characterised by a particularly intensive process of moulding, development and consolidation of a man's qualities, shaping of his character, formation of his world outlook and attitude towards life. The whole country regards the Decision of the CPSU Central Committee "On the Further Improvement of Ideological, Political and Educational Work" as an important theoretical and practical document. It is not fortuitous that this document has instructed the Ministry of Defence of the USSR, the Main Political Administration of the Soviet Army and Navy in particular, to take steps to intensify the educational role of the Soviet Armed Forces.

The educational role played by the Soviet Armed Forces is determined above all by their socio-political nature and class essence. Created by the Great October Socialist Revolution, the Soviet Army and Navy developed and matured together with socialist society. They embody all its best features. For instance, in the 1920s many boys drafted for military service were either wholly illiterate or able to read only in syllables. Commanders and political workers were faced with the task of not only providing military training and political education, but also of abolishing illiteracy.

This problem has long been solved. Today the draftees have an excellent general educational background. Practically 100 per cent of the men in the services have at least eight-year (incomplete secondary school) education and the proportion of servicemen with complete secondary (10-year) education is about 80 per cent.

A high general educational level of draftees and, hence, of army and navy personnel, is a distinguishing feature of the Soviet Armed Forces. It is conditioned by the social progress of Soviet society, by its concern for all-round promotion of education and cultural development of the peoples inhabiting the Soviet Union.

The Soviet Army and Navy are the armed forces of a state of the whole people. They reflect

in all their aspects the humane essence of advanced socialist society. The Constitution of the USSR lays down that it is the duty of the Armed Forces to provide reliable defence of the Socialist Motherland and to be in constant combat readiness, guaranteeing that any aggressor is instantly repulsed. Soviet officers and men are distinguished by political consciousness and lofty sense of responsibility for the fate of their Homeland, by ardent patriotism and unexcelled moral and fighting qualities.

The Soviet Armed Forces have no racial or national problems. Members of all the nations and ethnic groups inhabiting the USSR and forming an inviolable alliance serve shoulder to shoulder. Every military collective is a closely knit combat team in which the men are educated in a spirit of fraternity, solidarity, mutual respect and assistance.

Army barracks do not isolate the officer or man from the people. Soviet servicemen take an active part in the socio-political life of the country. Regardless of their post and rank servicemen enjoy all the social rights and freedoms as all other citizens of the USSR, rights and freedoms guaranteed by the Constitution. As far as promotion is concerned they have equal rights and opportunities.

Just like all Soviet working people servicemen take an active part in the election and work of the Soviets that handle all affairs of state from top to bottom. Over 13,000 of the deputies to the Soviets are servicemen.

The socialist system and Soviet way of life are one of the basic factors which have turned military service into a school of civic education. Being characterised by such features as collectivism, humanism, democracy and ethical purity, the system has imparted them to the Soviet Armed Forces too. The personality of the Soviet serviceman develops under the influence of these features.

The military collective develops and perfects in Soviet young men the features that were initially formed in the family, school, Young Communist League, DOSAAF (Voluntary Society for Assisting the Army, Air Force and Navy) and other public organisations. The entire make-up of life, conditions of existence, and system of combat training and political education in the armed forces exercise a decisive influence on the moulding of the young servicemen.

The period of active service is a serious school of political maturity for the Soviet soldier and sailor. Political lessons play a big educational role. They are a regular and stable form of political instruction for all privates and non-commissioned officers. Three-four hours of training time a week are devoted to political studies. As a re-

sult, in two or three years of service the men go through a serious course in political science including the fundamentals of Marxist-Leninist theory, present-day questions of CPSU home and foreign policy, a wide range of problems of Soviet military development, education and training.

Political studies are particularly effective in the first place because the men themselves take a keen interest in Marxist-Leninist theory, the policy of the Communist Party, and the heroic history of the Soviet Armed Forces. They work persistently to acquire political knowledge. Thus, Marxism-Leninism becomes their world outlook, their political convictions and guide in performance of their duty to the state and the people.

In military units and ships political lessons are organically combined with various mass political, cultural and educational activities. The servicemen are kept abreast of outstanding events in home and international life. Commanders and political workers organise for them lectures, reports, Lenin readings, talks, thematic evenings, youth disputes, evenings of questions and answers. The military collectives regularly discuss new feature films and hold readers' conferences to exchange views on new books. The book fund of the army and navy libraries includes over 116 million volumes. It is not accidental that the Soviet Army is the best read army in the world.

Every Lenin Room (Cabin), i.e. company or equivalent subunit, subscribes to the central and local papers, magazines and journals. In addition to *Krasnaya Zvezda* (Red Star), central organ of the Ministry of Defence of the USSR, the military districts, groups of forces and fleets publish about a dozen military journals and magazines and 26 papers. Each military unit is equipped with stationary and portable motion picture projectors, and has a radio transmission centre. Companies and batteries have TV sets of their own. Officers' Houses and Soldiers' (Seamen's) Clubs give performances of song and dance ensembles and army and fleet theatres. The patrons organise concerts and plays for the servicemen. Every unit and many subunits have their own amateur art companies. Thus, the Armed Forces of the USSR have ample facilities for ensuring the all-round harmonious development of the personnel, enhancement of their ideological, ethical and cultural level.

Army and navy life plays a big part in the development of the Soviet serviceman's personality, lofty ethical standards and active attitude towards life. Combat training brings the serviceman into contact with the latest combat equipment. Such essential features (which are highly valued by Soviet people) as industry, collectivism, persistence in pursuit of a goal, daring, courage and staunchness are moulded and developed on the

firing ranges, tankodromes, airfields, missile launching sites, in prolonged oceanic cruises and training combat.

The more difficult the situation in which combat training is conducted, the more effective it is. Military exercises are an effective means for enhancing the men's psychological stability and staying power. Such exercises are normally distinguished by extensive use of intricate combat equipment and large scope of operations.

The character of military labour has changed considerably. Today the service of the soldier and seaman differs greatly from that of his predecessors. It is characterised by higher intensity. Today an efficient fighter also has to be an accomplished athlete. Officers and men fully realise the value of physical fitness. Every unit and ship allocates special time for planned physical training. This is the official side of the matter, so to say. In addition, the personal initiative of the men in carrying out sports activities is encouraged in every way.

There is not a single unit or ship that does not have various sports sections organised on the initiative of Party, YCL activists and other enthusiasts. In their free time the men go in for track and field events, weight lifting, boxing, fencing, swimming and wrestling. The army and navy have produced many gifted athletes who have shown excellent performances at international competitions and have defended with credit the sports honour of their Homeland in other countries.

The military way of life has a beneficial educational effect on the men. The strict schedule, time discipline, cleanliness in barracks and offices, exacting requirements as regards personal appearance, smartness and efficiency work positive changes in the character and behaviour of young servicemen.

In the Soviet Armed Forces the purpose of combat training and political education is not only to produce military specialists, but also to mould efficient combat teams in both army and navy. A Soviet military collective is characterised by great educational power, lofty political consciousness, organisation and community of interests of all its members. Collectivism does not dissolve the typical features and best qualities of the individual. On the contrary, the Soviet military collective helps a man to develop vivid individual features and to correct his defects and bad habits. The consciousness of being part of a great cause increases the fighting potential of the individual Soviet serviceman, strengthens the spirit of fighting comradeship, and promotes creative initiative.

Soviet servicemen display their activeness most vividly in socialist emulation. In 1980 — year of V. I. Lenin's 110th birthday anniversary, of the

35th anniversary of the Soviet people's victory over Nazi Germany, and of active preparations for the 26th Party Congress — it has assumed particularly large proportions. Every officer and man according to his potential abilities assumes personal obligations to achieve excellent results, to become a rated specialist or to make his subunit an excellent one. Emulation promotes comradely mutual assistance which manifests itself in helping individuals and entire collectives to apply advanced experience. In other words, socialist emulation not only contributes to success in combat training, it also promotes the education of the personnel.

It follows that all the necessary conditions are to hand for organising effective education of the personnel in the Armed Forces. The profound theoretical knowledge, broad political outlook and sound practical skills of the educators, i.e. commanders and political workers, guarantee the fulfilment of these conditions. In military schools, besides special subjects, the future officers study Marxism-Leninism, the fundamentals of military pedagogy and psychology, acquire the necessary military and technical knowledge and cultivate practical skills in political education under the guidance of experienced and qualified tutors. Having acquired the necessary practical experience in the units and fleets, many officers continue their education at military (naval) academies and other higher educational establishments.

At present 100 per cent of the brigade commanders and nearly 100 per cent of the commanding officers of regiments and ships have higher military education. All the heads of political organs, most deputy commanders of regiments and ships for political affairs have completed higher educational establishments.

The Party and Young Communist League organisations render serious aid to commanders and political workers in educational work among the personnel. Communists and YCL members influence the other men by their personal example and by persuasion. The commanders, political workers, Party and YCL organisations have a comprehensive approach to the education of the personnel. They see to it that the social medium, military labour, Party-political work and everyday life, i.e. all the diverse factors, help to steel the men ideologically and ethically, develop in them lofty moral and combat qualities and mould an active attitude towards life.

The educational efforts of Soviet commanders and political workers are supplemented to a certain extent by Party leaders, statesmen, advanced workers, scientists and cultural workers. Together with the political organs and Party organisations they conduct various mass measures in the units

and ships. Thus, representatives of local organisations make a tangible contribution to enhancing the men's political, ethical and aesthetical education level. The ties between the local population and the personnel of military units have been growing stronger with every year. This is a manifestation of the unity of the army and the people.

Military service is an important stage in the life of every young man in the USSR. It is worth noting that, upon honourable discharge, former servicemen express a high opinion of its role in their personal lives and their ethical maturing. This is graphically borne out by letters of former servicemen which are published in periodicals. It is with a feeling of great warmth and gratitude that they write about their period of active service.

Service in the Soviet Armed Forces helps a young man to understand life properly, to appraise reality and, what is most important, to act correctly. L. I. Brezhnev, General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, said:

"You can always rely on the men who have gone through the school of military service, both in peaceful constructive labour and, in the event of need, in the hour of trial in war."

Under the Soviets far reaching changes have taken place. A backward agrarian country in the past, Russia has become a state with a powerful industry, highly developed agriculture and advanced science. Radical socio-political changes have taken place. A new socialist type of personality — the Soviet man — has taken shape.

The Soviet state and its Armed Forces have moulded a serviceman of a new type. He is distinguished not only by excellent professional skill, but also by his lofty ethical qualities. During the Second World War the Soviet servicemen accomplished their liberation mission. Their behaviour was characterised by such features as courage, staunchness, humanism, a noble attitude towards the vanquished enemy and especially to the civilian population. The people of countries visited by Soviet servicemen are still surprised by their love of life, inexhaustible social optimism, efficiency, discipline, and profound respect for national customs of other peoples.

The Soviet Armed Forces have honourably accomplished and are continuing to accomplish their patriotic tasks and internationalist duty. They provide reliable protection for the cause of the revolution, socialism and peace between peoples.

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WARSAW PACT AND GROUPS OF FORCES

WARSAW PACT 25th ANNIVERSARY

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 2-8

[Article by Col Gen G. Sredin, first deputy chief of the Main Political Directorate of the Soviet Army and Navy: "Reliable Bulwark of Peace"]

[Text]

Twenty-five years ago on May 14, 1955, the European socialist states signed the Warsaw Treaty of Friendship, Cooperation and Mutual Assistance.

It is symbolic that this day is marked immediately after the Day of Victory over Nazi Germany. The rout of the Nazi Reich accelerated the deep changes occurring in the world. The world socialist system emerged and is gathering momentum with every year. The resolution adopted by the CPSU Central Committee on the 110th birth anniversary of V. I. Lenin stressed that "the world socialist community, united on the basis of Marxism-Leninism and socialist internationalism is in the vanguard of social progress. It is the most dynamic economic and political force and the bulwark of peace and security of the peoples."

For a quarter of a century now the Warsaw Treaty has been reliably serving the cause of peace and socialism. Having appeared due to causes external to world socialism, at the same time, it profoundly reflected the inherent nature of the socialist socio-economic formation and began to develop and function according to laws diametrically opposite to those of the imperialist military blocs.

The Warsaw Treaty organisation differs ba-

sically from the imperialist military blocs by its nature, the essence and content of the principles underlying the relations existing among the member-states, by the functions they exercise and the objective role they play in historical progress.

If the NATO bloc, like other military coalitions of imperialism, is meant to fight world socialism, international working class and national-liberation movements and the other revolutionary forces of today, the Warsaw Treaty is a genuine defensive organisation. It was founded six years after the North Atlantic Treaty Organisation as a response to the direct military threat stemming from the imperialist nations. The socialist countries, signatories to the Warsaw Treaty, do not threaten anyone. The sole purpose of their uniting into a military alliance was to defend the gains of socialism, the freedom and independence of the peoples, to consolidate the cause of peace in Europe and in the whole world. Article 5 of the Treaty says that all defensive measures of the Warsaw Treaty member-states pursue the aim of safeguarding the peaceful labour of their peoples, guaranteeing the inviolability of their frontiers and territories and providing defences against possible aggression. Article 4 likewise testifies to the defensive character of the Warsaw Treaty Co-

ganisation. It stipulates that in case of an armed attack in Europe on one or several Warsaw Treaty member-states by some country or group of countries, each signatory to the Treaty, exercising the right to individual or collective self-defence in accordance with article 51 of the United Nations Charter, shall render the state or states, subjected to such an attack, immediate assistance individually and, in agreement with the other Treaty member-states, with all means it deems necessary to employ, including the use of military force.

Simultaneously with the founding of the Warsaw Treaty, its member-states established the Joint Armed Forces comprised of national contingents detailed, by agreement among the Treaty signatories, for conducting joint operations.

Having founded the Warsaw Treaty Organisation, its member-states immeasurably strengthened and consolidated the defence power of the world socialist system. The founding of the Warsaw Treaty Organisation was a qualitatively new step in the establishment of a collective system to defend the socialist states.

The Warsaw Treaty is open to other states too, irrespective of their social systems. The only condition required of the countries wanting to join the organisation is the struggle for the goals defined by the Treaty. The general democratic and juridical principles and norms that comprise the basis regulating the relations existing among the signatories to the Treaty, are also acceptable to countries with different social systems which are interested in defending peace and developing international cooperation, in maintaining and strengthening relations with all countries, in organising mutual assistance against the aggressor.

The characteristic features of imperialist military blocs are: unequal status of their members, domination of the stronger over the weaker, the striving to solve narrow-nationalistic tasks of their countries' imperialist circles at the cost of infringing upon the interests of their partners in the bloc.

Cooperation of the socialist states within the framework of the Warsaw Treaty Organisation, comprised today of Bulgaria, Czechoslovakia, the GDR, Hungary, Poland, Rumania, and the USSR, is built on the community of aims and interests of the peoples of the fraternal socialist states. This community of aims ensues from the similarity of the socio-economic and socio-political system, common Marxist-Leninist ideology, the common

goals of building socialism and communism and solidarity with the international working class and the national-liberation movement. The socialist states' common necessity to cooperate and assist each other in defending the socialist gains, in coordinating their actions to defend peace and world security and in the struggle against imperialism and international reaction likewise have reference to the community of aims of the Warsaw Treaty member-states.

This military political organisation of the socialist community has accumulated considerable experience during the past years. It has worked out norms of activities and development conforming to the international spirit. "In this tempestuous world we of the socialist community have firm ground under our feet," said the General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet L. I. Brezhnev at the festivities in Berlin to mark the 30th anniversary of the GDR. "We created it ourselves, pressing for the steady progress of our economies, developing socialist democracy, ensuring a constant growth of the well-being of our peoples and strengthening by common efforts our defence. Our ties are deep and diverse, and we are learning to cooperate still better and better..."

The activities of the organisation of the Warsaw Treaty are developing in two main directions; first — coordinating the foreign policy of the allied states in the struggle for détente, for consolidating peace, security of the peoples, mutual cooperation in the economic, cultural and scientific fields based on principles of peaceful coexistence and working out agreed policies on topical problems, and second—in coordinating the defence efforts of the signatories to the Treaty and activities of the Joint Armed Forces.

The significance of coordination of the foreign policy by socialist brothers-in-arms increases with the rise of their influence in the world arena. A concerted line of action is being worked out and principles of approach to the main problems of the European and world policies are being determined. Principles are also being determined in relation to the effective search for ways of solving concrete issues on the basis of exact consideration of all the factors, all nuances of the situation and all details of the positions of the interested states.

With the signing of the Warsaw Treaty the member-states laid the foundation of a mechanism

intended to consider general political problems relating to all the signatories to the Treaty. These functions were entrusted to the Political Consultative Committee (PCC), which heads the Warsaw Treaty Organisation. The Peace Programme advanced by the 24th and 25th CPSU congresses became the platform of the PCC's activities. This important document defined the paramount tasks of socialist foreign policy in the present stage of world development. The Peace Programme was warmly approved and supported by the Soviet people, the peoples of the countries of the socialist community, and by millions of people in the capitalist world.

The organisation of the Warsaw Treaty became the principal coordinating centre of the fraternal countries' foreign policy activities. The Political Consultative Committee sessions are held in turn in the capitals of the countries, members of the Treaty. And as a rule, they are held on the level of general (first) secretaries of the Central Committees of the Communist and Workers' Parties and heads of government of the Warsaw Treaty member-states.

Tens of major political issues, covering the interests of the separate socialist states and the community as a whole, were resolved at sessions of the PCC, issues that have exerted a big influence on the situation in Europe and the whole world. The principal trends and key foreign policy issues of the fraternal countries and large-scale foreign policy acts directed at achieving détente, curbing the arms race and preventing the danger of a new war were decided at these meetings. In the course of such discussions the socialist foreign policy principles were translated into concrete programmes of action directed at consolidating socialism's positions and the cause of peace. At the PCC sessions, along with general political problems, topical issues connected with the strengthening of the socialist countries' defensive capacities and fulfilment by them of joint defence obligations, were tackled. It is characteristic that discussions of these problems are conducted in a business-like and creative atmosphere and invariably in a spirit of fraternal mutual understanding and friendship, on a genuinely collective basis, with each signatory state contributing its share in resolving this or that problem.

Already at the first PCC meeting in January of 1956 a Declaration was adopted calling on all European states to establish a system of collective security in Europe. At its second meeting, which

was held in Moscow in May 1958, a resolution was adopted by the Political Consultative Committee calling on the NATO member-states to conclude a non-aggression pact between NATO and the Warsaw Treaty. In January 1965 this proposal, which did not meet with a positive response in the NATO circles, was again raised by the Warsaw Treaty member-states and once again it was turned down by the western countries.

In July 1966 the Warsaw Treaty displayed serious concern for the future of the peoples of Europe. In its Declaration on Strengthening Peace and Security in Europe it proposed to establish an all-European council of states for the purpose of discussing vital European issues, questions of normalising cooperation and mapping out ways of putting this system of collective security into practice.

Many years of consistent efforts on the part of the Soviet Union and other signatories to the Warsaw Treaty, aimed at relaxing tension in Europe, led to the convocation in 1975 of a Conference on Security and Cooperation in Europe and the signing of the Final Act by the top-level leaders of 33 European countries and the USA and Canada. For the first time in the history of humanity a document was adopted, on the scale of the whole continent, determining the norms and principles of peaceful coexistence of the two social systems.

In the recent years coordination of the socialist states' foreign policy activities is also contributing very effectively to the successful development of their peaceful offensive. In this sense the Appeal of the Political Consultative Committee to all the states that have signed the Final Act of the all-European conference to assume obligations not to be the first to use nuclear weapons against one another is very illustrative. Other concrete proposals serving the interests of peace have also been put forward.

The Warsaw Treaty member-states unanimously supported the Strategic Arms Limitation Talks (SALT-2) concluded between the USSR and the USA, regarding it as a major success in the struggle to curb the arms drive. They resolutely condemn the course pursued by the military circles of the USA, which is hostile to détente and aimed at frustrating ratification of this treaty. The initiatives with which the socialist countries are coming out in the struggle for a military détente include a wide spectrum of proposals aimed at carrying out partial as well as more radical measures. These

include proposals to conclude a universal agreement on the non-use of force, to cut military budgets, to liquidate military bases on foreign territories, not to produce new types of conventional weapons of great destructive capacity, to strengthen guarantees of safety for the non-nuclear states, including renunciation of the use of nuclear weapons against them, to put a stop to the production of such weapons and to curtail their stockpiles down to their full destruction.

Prompted by a sincere desire to lead out of the impasse the long-standing efforts to achieve military détente and to show an example of passing from words to actual deeds, the Soviet Union, in agreement with the GDR leadership and following consultations with the other Warsaw Treaty member-states decided unilaterally to cut the number of Soviet troops stationed in Central Europe. Speaking in Berlin in October 1979, L. I. Brezhnev announced that in the next 12 months 20 thousand Soviet servicemen, one thousand tanks and a definite amount of other military weapons and equipment would be withdrawn from the territory of the GDR. And the decision is being confirmed by practical actions of the Soviet state: some of the above-mentioned tanks and manpower contingents have already been withdrawn from the GDR. L. I. Brezhnev said that the Soviet Union was prepared, in comparison with the present level, to reduce the number of medium-range nuclear missile weapons deployed in the western areas of the USSR, provided additional weapons of the same type would not be deployed in Western Europe. A month later the Soviet Union came out with a proposal to begin talks immediately on the practical solution of the question concerning this weapon.

But subsequent events showed how great was the distance between the words of the North Atlantic bloc politicians on the desirability of talks on problems of military détente and their concrete deeds. Under pressure from the USA the members of NATO decided on an annual increase in military budgets, modernisation of their armaments and their stockpiling in Western Europe. In December 1979 at a session of the NATO military-political organisation a plan was adopted to produce and deploy new types of American medium-range nuclear missile weapons on the territory of Western Europe with the aim of achieving military supremacy over the socialist countries. If these plans were carried out they would be detrimental to the interests of Euro-

pean security and gone contrary to the aims and purpose of the policy of détente as a whole.

Historical experience testifies to the fact that the entire course of the foreign policy activities of the Warsaw Treaty Organisation is directed at developing extensive international cooperation and safeguarding European and world peace. The characteristic feature of this activity is the concreteness and constructiveness of the practical measures proposed, which are fully in keeping with the general interests of all the peoples of the world and correspond to UN aims and principles. Therefore it is quite natural that the foreign policy activity of the Warsaw Treaty member-states evokes respect of all progressive humanity. People of good will all over the world see that the socialist community is carrying high the banner of the peace-loving foreign policy bequeathed by the great Lenin and that the Warsaw Treaty Organisation is a mighty and effective factor of peace and stability in international relations.

At the same time the socialist countries are fully aware that influential imperialist forces are still trying to push the world into the abyss of a devastating thermonuclear war, that NATO and other aggressive imperialist blocs are spearheaded against the countries of the socialist community and present a real danger to peace and security of all peace-loving peoples. Therefore the socialist states have a special responsibility in safeguarding peace. They see their duty in further strengthening the might and unity of their armed forces and in increasing their defence potential, since today this is one of the main warrants of peace and an obstacle in the path of the warmongers.

The armed forces of the Warsaw Treaty member-states have an important mission to fulfil in defending the socialist countries and the security of the peoples because they are standing against the main grouping of the armed forces of the aggressive NATO bloc's main imperialist member-states. And if the imperialists were not able to involve the nations into a new devastating war, the credit must go, first of all, to the Soviet Union and the other socialist countries who founded the Warsaw Treaty Organisation, vigilantly standing guard over socialism, peace and security of the peoples.

In the past few years the Warsaw Treaty military organisation has considerably grown in strength. The armed forces of the allied states,

due to collective efforts, have a high degree of combat readiness. They have at their disposal the newest types of military equipment. They are well trained and possess a high level moral and political potential.

The main source of the strength and might of the armed forces and the fraternal alliance as a whole lies in the leadership of the Communist and Workers' parties. They are the educators of the armed forces in the spirit of socialist patriotism, internationalism and boundless devotion to the great cause of communism.

The Defence Ministers' Committee is doing fruitful work in strengthening the defence might of the Warsaw Treaty member-states and their armed forces. Close military cooperation of the allied countries is also exercised within the framework of the Joint Command, Military Council, Headquarters of the Joint Armed Forces and other military bodies of the Warsaw Treaty Organisation.

The work of the allied military bodies proceeds in an atmosphere of mutual understanding and fraternal friendship. This is one of the graphic manifestations of socialist internationalism.

The Joint Command coordinates efforts in the field of military construction and training of the Joint Armed Forces, equipment of the allied armies with materiel, improvement of the organisation of the forces and raising their military potentials. The unity of views on questions of improvement of the arms and services of their forces and strengthening of their material-technical base are resolved within the framework of the Treaty. Among the fruitful forms of cooperation are meetings and consultations. Plans of training the Joint Armed Forces and various measures to perfect the combat readiness of the armies and navies are discussed at meetings of the command personnel of the allied armies.

The friendly ties and contacts of the political bodies of the allied armed forces are constantly expanding. There is a wide range of experience in political work and in the ideological education of servicemen in the spirit of socialist internationalism and high revolutionary vigilance. Fine arts and photo exhibitions and exchanges of musical and song repertoires are now more regular

features. Contacts between officers, soldiers and seamen of the friendly armies, between military painters, journalists, theatre workers, cinematographers and song and dance ensembles of armies and fleets are broadening.

Joint troop and command and staff exercises, conducted according to the Joint Command plans, occupy a special place in the combat cooperation of the allied armies. Their military and political significance is considerable. They demonstrate the increased defence might of the socialist states and mobilise the allied armies' personnel to defend the revolutionary gains of their peoples. At the same time they enrich the military art of the socialist armies, promote perfection of strategic training of commanders and staffs, raise the combat readiness of the forces and make it possible to work up more effectively organisational questions of cooperation and control of the armed forces. They show the high combat readiness of the fraternal armies, the reliability of the military equipment and weaponry, the good organisational abilities of commanders and headquarters and the personnel's military efficiency.

At the same time joint exercises and manoeuvres serve as a remarkable school of fraternal friendship and comradeship-in-arms of servicemen of the Warsaw Treaty member-states' armies. Commanders and political bodies make wide use of them not only for exchanging experience in combat training and political education but also for strengthening the friendly relations between the servicemen of the allied armies and the population of the countries on whose territory they are held.

Firm and inviolable is the alliance of the fraternal socialist states. Comradeship-in-arms of their armies is the embodiment of proletarian solidarity of peoples and Lenin's principles of socialist internationalism. It is a brilliant manifestation of the unity of the international tasks facing the socialist states in defending their gains against the schemes of international reaction.

L. I. Brezhnev points out that the Warsaw Treaty Organisation has already been reliably serving precisely these aims in Europe for 25 years.

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WARSAW PACT AND GROUPS OF FORCES

DEVELOPMENT OF SOCIALIST COOPERATION

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 9-11

[Article by Col A. Orlov, Cand. Sc. (History): "The Birth of Brotherhood"]

[Text]

Below is an account of the inception and development of the internationalist brotherhood and comradeship-in-arms of the armies of the socialist countries.

THE INTERNATIONALIST comradeship-in-arms of the working people of the socialist countries is deeply rooted in the historical days of the Great October Socialist Revolution and the Civil War years in Russia (1918-20). In that period of grim trials for the young Soviet state, tens of thousands of soldiers-internationalists from different countries fought in the ranks of the Red Army. V. I. Lenin attached great importance to their taking part in the struggle of the Red Army against the foreign interventionists and White Guards. Speaking to the soldiers of the Warsaw Revolutionary Regiment on August 2, 1918, he said: "It is your great privilege to uphold sacred ideas arms in hand, and to make international brotherhood of nations a reality by fighting together with your front-line enemies of yesterday — Germans, Austrians and Magyars."

The Soviet Republic also rendered enormous assistance to the revolutionary movement of other nations, to their struggle for independence. In 1919, when the Hungarian Soviet Republic was established, former Russian prisoners of war in Hungary formed a battalion (over 1,000 men) which was incorporated into the International Brigade formed in Budapest, and took part in operations against the counter-revolutionaries.

In 1921, at the request of the Mongolian people's government, the Red Army helped its People's Revolutionary Army to rout the forces of foreign interventionists and White Guard troops.

When the Civil War ended, the Communist Party continued to educate the Soviet people and officers and men of the armed forces in the spirit of international solidarity

and respect for the peoples of other countries. The Soviet Union came to the assistance of the Chinese people in their struggle against Japanese imperialism. In 1939 the Soviet Armed Forces assisted the Mongolian People's Republic in repulsing the Japanese aggressors in the Khaikhin Gol region. Soviet volunteers took part in the national-revolutionary war of the Spanish people (1936-39) against fascism. This was also a remarkable manifestation of internationalism.

The international comradeship-in-arms was further developed in the years of the Second World War (1939-45). Playing a decisive role in the rout of Nazi Germany and militarist Japan the Soviet Armed Forces liberated the peoples of a number of European and Asian countries. Czechoslovak, Polish and Yugoslav forces, and in the final phase of the war — Romanian and Bulgarian formations and Hungarian units fought side by side with the Soviet troops in Europe. German anti-fascists took an active part in the fight against Hitlerism. This struggle against the common enemy laid the foundation for the comradeship-in-arms of the fraternal armies. Units and formations of other countries were formed on the territory of the USSR.

In December 1941 in the Southern Urals city of Buzuluk, in accordance with the Soviet-Czechoslovak military agreement of September 27, 1941, the 1st Czechoslovak Independent Battalion under Ludvik Svoboda began to be formed. The Soviet Government provided it fully with weapons, equipment and ammunition. Soviet officer-instructors took part in training the personnel.

On March 8, 1943, the battalion received its baptism of fire in the battle for Sokolovo, a Ukrainian village near

Kharkov. The Soviet Government decorated many Czechoslovak officers and men with Orders and medals for their valour and heroism. Otakar Jaroš, the commander of an infantry company, was awarded the title of Hero of the Soviet Union.

In the summer of 1943 the Czechoslovak Infantry Brigade and in April of the next year — the Czechoslovak Army Corps were formed on the basis of the battalion. Its officers and men fought shoulder to shoulder with the Soviet troops to liberate many Ukrainian cities and villages and on their native soil. The Corps ended its combat road in Prague. Ten Czechoslovak units and more than 800 officers and men were awarded Soviet Orders and medals, five of them became Heroes of the Soviet Union.

On May 6, 1943, in compliance with the request of the Union of Polish Patriots — a public political organisation of Polish emigrants in the USSR — the Soviet State Defence Committee decided to form the Tadeusz Kosciuszko 1st Polish Infantry Division in military camps near the city of Selsky not far from Ryazan.

At the beginning of July the division already numbered over 14 thousand men, more than 90 per cent of whom were Poles.

On October 12, 1943, the 1st Polish Division, reinforced with Soviet artillery and mortar regiments, a howitzer brigade and an engineer battalion, joined battle with the enemy near the Byelorussian village of Lenino. In this engagement the Polish officers and men demonstrated courage, fortitude and heroism. Soviet Orders and medals were awarded to 239 of them and two — Captain W. Wysotski and Private A. Krzywon (posthumously) — were awarded the title of Hero of the Soviet Union.

In August 1943 the 1st Polish Corps began forming and in the following spring the 1st Polish Army, under general Sigmund Berling, was formed. Side by side with the Soviet forces its units valiantly fought the enemy on the approaches to Warsaw and took part in other offensive operations. The 2nd Polish Army under general Karol Swierczewski, which was formed at the end of 1944, was incorporated into the 2nd Ukrainian Front and took part in the Berlin and Prague operations.

The feats of arms of the Polish troops were repeatedly noted in orders of the Supreme Commander-in-Chief. Twenty-nine Polish units and formations were decorated with the Soviet Orders. Friendship of the Soviet and Polish officers and men, born on the battlefields, became a reliable foundation of the subsequent comradeship-in-arms of the Soviet and Polish Armies.

In the autumn of 1943, on the initiative of the Romanian anti-fascists residing in the USSR, a volunteer infantry division named after Tudor Vladimirescu began to form.

The Soviet Government bore the whole cost of equipping and arming this division and assigned a group of Soviet officers to assist in forming and training it. In April 1944 it was incorporated into the 2nd Ukrainian Front. It took part in the Jassy-Kishinev and other operations of the Soviet Army. The 2nd Infantry Division, consisting of volunteers among the Romanian prisoners of war, was formed in the spring of 1945. It too was fully equipped with Soviet weapons and equipment. Owing to the defeat of Nazi Germany it could not take part in battles, but played a big role in the formation and shaping of a new Romanian army. After the anti-fascist revolt in Romania on August 23, 1944, troops of the 1st and 4th Romanian Armies and the 4th Independent Corps fought side by side with the Soviet Army. They took part in the final liberation of their country and a number of areas in Hungary and Czechoslovakia. The Tudor Vladimirescu Division was awarded the Order of the Red Banner.

It was in the fire of partisan warfare, which spread all over the territory of monarchist Bulgaria, that the Bulgarian People's Army began to take shape. After Nazi Germany's treacherous attack on the Soviet Union on June 22, 1941, partisan groups and detachments began to be formed in the country under the guidance of the Bulgarian Workers' Party. In 1943 the People's Liberation Insurrectional Army was formed on the basis of numerous partisan forces. The entry of the Soviet forces into Bulgarian territory on September 8, 1944, served as a signal for a general insurrection. After its victory, the government of the Bulgarian Fatherland Front declared war on Nazi Germany and operationally subordinated the Bulgarian Army to the 3rd Ukrainian Front.

Bulgarian troops fought shoulder to shoulder with the Soviet and Yugoslav forces to liberate Eastern Yugoslavia, Hungary and Austria from the Nazi invaders. They took part in the Belgrade, Balaton and Vienna offensive operations of the Soviet Army, demonstrating courage and heroism. 480 Bulgarian men and officers were decorated with Soviet Orders and medals. The comradeship-in-arms of the Soviet and Bulgarian officers and men was forged and strengthened in joint actions against the Nazi Wehrmacht.

During the war years all-round assistance was rendered to the Yugoslav people who fought for their liberation from 1941. The USSR supplied the Yugoslav People's Liberation Army with weapons, equipment and military specialists. An infantry and a tank brigade provided with Soviet military weapons and equipment were formed on Soviet territory. In the autumn of 1944, at the request of the Yugoslavs, Soviet forces entered the country to assist in driving out the Nazi invaders. From then on the Yugoslav forces fought the enemy in close cooperation with the Soviet Army. Jointly with the forces of the 3rd Ukrainian

Front they liberated Eastern Yugoslavia and Belgrade, the capital of the country, and took part in the Balaton operation in Hungary.

Patriots led by the Hungarian Communist Party fought with arms in hand against Hitlerite Germany and the fascist regime in Hungary. After the rout of the Nazi forces in Stalingrad, many soldiers of the 2nd Hungarian Army asked the Soviet Command to send them to Soviet military units or partisan detachments to fight the German and Hungarian fascists. By the end of 1943 hundreds of Hungarians were fighting in the partisan detachments and formations. At the request of the Central Committee of the Hungarian Communist Party Hungarian personnel were trained in the Soviet Union for the task of organising the partisan movement in the enemy rear.

With the spread of military operations in Hungary, Hungarian soldiers began more frequently to cross over to the side of the Soviet Army. Up to 20 companies of Hungarian volunteers fought valiantly side by side with the Soviet forces in the battles to liberate Budapest, for the freedom of their country. Soon these companies were united into the Buda Volunteer Regiment. The 1st Hungarian Railway Division greatly assisted the Soviet forces in restoring the communications destroyed by the Hitlerites.

The comradeship-in-arms of the fraternal armies grew stronger and was tempered in fighting side by side on the battlefields. In the course of the struggle against fascism the people's armies of most of the central and south-eastern countries were born. The military units and formations, created with the help of the USSR, played an important role in forming and shaping these armies.

Twenty-nine divisions, 31 brigades and other units and subunits were formed in the Soviet Union. Soviet officer-instructors played a considerable role in improving their fighting efficiency and training the personnel. The Soviet Union transferred to the new people's armies 960 thousand rifles, carbines and submachine guns, 40,627 machine guns, 16,502 guns and mortars, 1,124 tanks and self-propelled guns, 2,346 aircraft and much other military equipment and weaponry.

The experience of the comradeship-in-arms of the fraternal peoples and armies gained during the Second World War confirmed the enormous significance of the ideas of proletarian internationalism, the important role they played in repulsing the onslaught of imperialism. The Communist and Workers' parties were the guiding and directing force in moulding and strengthening that comradeship-in-arms. Communist-internationalists in the various units and formations, united them and showed examples of courage and heroism in fighting for the liberation of the countries under the yoke of fascism.

The traditions of fraternal friendship, born in the Second World War, are sacredly preserved and developed by the officers and men of the Warsaw Treaty countries. Lenin's words about the close military unity of forces fighting against imperialism are topical as never before. "We consider," Comrade L. I. Brezhnev emphasised, "to-day too, these words as a sacred legacy to all detachments of the socialist front fighting imperialism in the Lenin way. Bearing these words in mind, we shall exert all efforts to make the Warsaw Treaty Organisation, the military alliance of the socialist countries, more powerful and to strengthen their joint defences."

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ARMED FORCES

PRINCIPLES OF SOVIET MILITARY ORGANIZATION

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 15-17

[Article by Maj Gen V. Novikov (and) Col N. Kuznetsov, Cand. Sc. (Law): "Leninist Principles of Soviet Military Construction"]

[Text]

The socio-political principles of Soviet military construction* reflect its unity with Soviet development in general and its organisational principles, which are described in this article, express the specific character of the Armed Forces' activities in the military field, their peculiarity and nature as a state body, specially founded to safeguard the socialist gains, the peaceful labour of Soviet people, the sovereignty and territorial integrity of the country.

The organisational principles include principles of the organisation of cadres in the Armed Forces, centralisation, one-man command, conscientious military discipline and maintenance of constant combat readiness.

After the victory of the Great October Socialist Revolution counter-revolutionary forces and international imperialism unleashed a war against the new Soviet state. The Socialist Homeland could be safeguarded only with the help of an efficiently organised, disciplined, well-trained and well-armed regular army, an army of a new socialist type.

It was V. I. Lenin who worked out the principle of the Armed Forces development on a permanent and regular service basis. Subsequently it was developed by the Communist Party in resolutions adopted according to the concrete conditions in which the new society was being built and to the international situation. Its essence is that the entire military system of the state was based and functioned on two interrelated components: constant high degree of readiness of formations for combat and the necessary number of trained men in the reserve.

The regular service principle is the basis of the entire military system of the Soviet state. Its necessity is dictated by the international situation, the increased importance of the tasks facing the Soviet Army and Navy, the sophisticated military equipment at the disposal of units and ships, and hence the high demands on the training of the personnel.

In present-day conditions, when imperialist circles are constantly intensifying the international situation and piling up armaments, the regular service organisation of the Soviet Armed Forces

makes it possible to maintain a high degree of readiness of forces for combat and, if necessary, to carry out mobilisation and strategic deployment in the shortest possible time.

The other principle of the Soviet military development — centralisation of leadership is determined by the specific character of the military organisation itself and the tasks facing the army. Its essence is that the military command, guided by the resolutions of the Communist Party, its Central Committee and the Soviet Government, unites the efforts of the forces under it and sets them the aim of steadily raising the defence potential of the state and keeping the army and navy in combat readiness in peace-time and achieving victory in war.

Centralisation is possible and takes place also in the other fields of state management. But it is in the military sphere that this principle is most consistently and completely practised. The leadership of the country's Armed Forces is effected by the supreme organs of state power and state management of the USSR and all services and arms of the Armed Forces are subordinated to a single command. The central bodies of military administration are vested with full powers for leadership of the military organisations and forces subordinated to them. The decisions and instructions of the higher bodies and officials are obligatory for the lower ones. Centralisation in military leadership is expressed by vertical subordination only of military organisations at all levels, and absence of subordination of them to local, territorial bodies of state power and management. These rulings do not exclude but presuppose initiative, creative approach and certain self-dependence of subordinate military organisations in carrying out the tasks set them.

The important principle in the development of the Armed Forces is the one-man command. In the first years of Soviet power, summing up the practical application of the one-man command principle in the Red Army, Lenin said:

"This experience is worth thinking about. Developing systematically, it passed from a corporate form that was casual and vague to a corporate form elevated to the status of a system of organisation and permeating all the institutions of the army; and now, as a general tendency, it has arrived at the principle of one-man responsibility as the only correct method of work."

One-man command is the most expedient method of leadership of the Armed Forces. The one-man commanders are vested with full power in all functions (command, political, administrative and economic). At the same time they bear the responsibility for all aspects of the life and activities of the forces under their command.

It is stated in the Interior Service Regulations of the Soviet Armed Forces that the commander of a unit (subunit) is vested with one-man authority and is responsible personally to the Communist Party and the Soviet Government for the constant combat and mobilisation readiness of the unit (subunit) under him. He is responsible for the combat training and political education, military discipline and moral-political qualities of the personnel, for the state of the armaments, combat equipment and transport and for the military material and medical provision of the personnel.

The principal feature of one-man command in the Soviet Armed Forces is that it is built on the Party basis, that all questions connected with the training and education of the forces are resolved by the commanders proceeding from the policy pursued by the Communist Party, in close cooperation with political workers and guided by the Party organisations. By taking into account the opinions and advice of the Communists and their firm support, it is possible for the commanders to take the most correct decisions and to put them in practice in the best possible way. Thus, in the Soviet system of one-man command, the commander's authority is organically combined with the will of the Party collective, of which he himself, as a rule, is a member.

The rights and obligations of the commander vested with one-man authority are defined by various norms of law. He must not go beyond the limits of power conferred on him by the laws and other juridical norms. The Soviet law system constitutes the legal foundation of the activities of the bodies of military administration and one-man commanders.

The right to be the leader of a military collective is determined not only by the authority of the appointment held, but also by knowledge, personal discipline and example, and high moral and political qualities.

One-man command in the Soviet Army has been tested by many years of practice and extensive experience. The particular dynamism

and rapid changes of situation in modern warfare considerably raise the role of a commander and military leader in the guidance of the Armed Forces.

The specific feature of military development and administration is also expressed in military discipline, which is based, first of all, on the awareness of every serviceman of the necessity to fulfil his military duty in the interests of all the people and of safeguarding the gains of socialism. Lenin brought to light the class content of Soviet military discipline and showed that it is built on high political consciousness of the personnel. He said:

"The Red Army established unprecedentedly firm discipline—not by means of the lash, but based on the intelligence, loyalty and devotion of the workers and peasants themselves."

The mutual relations of superiors and subordinates, seniors and juniors in the Soviet Army are formed on the basis of the unity of fundamental interests of all servicemen as representatives of the friendly classes of society and on the community of their political convictions and moral principles.

The socio-political content of Soviet military discipline is constantly being enriched. The following processes, characterising the dynamic development of socialism, are reflected in it: changes in the social structure of society, overcoming of the social and class differences between manual and mental workers and development of relations between nationalities.

Lenin considered the method of persuasion to be the main method of educating in discipline. But in army conditions it does not exclude measures of coercion towards those servicemen who permit themselves to deviate from the order established in the Armed Forces. A military order, without which life of any army cannot be imagined, in itself already contains an element of coercion. But in a socialist army the commander's order answers the interests of both the common cause and of the individual serviceman. The soldiers submit to the order consciously, understanding that it is a law and must be fulfilled implicitly, exactly and in time.

Unlike imperialist armies, where coercion is the principal method used to maintain military discipline, in the armies of socialist countries coercion serves as a subsidiary method of education

and is applied only in conjunction with the method of persuasion.

The content, general features and characteristic peculiarities of Soviet military discipline are laid down in the Disciplinary Regulations of the Armed Forces of the USSR. They are closely connected and are one with socialist legality. Pointing to the importance of law and discipline in creating and strengthening an army, Lenin placed them both on the same level.

"Obey all the laws on the Red Army and all orders conscientiously and scrupulously, support discipline in it in every way."

Discipline and socialist legality in the Soviet Armed Forces are guaranteed, first of all, by the tenor of life itself, by the objective material prerequisites, characteristic of the Soviet state and social structure. All the Soviet people, government bodies and officials are interested in their strengthening. In conditions of the Armed Forces commanders and superiors personally organise the carrying out and execution of the disciplinary requirements and socialist legality.

The principle of constant combat readiness of the Soviet Armed Forces to repulse aggression and defend the socialist gains of the working people plays a big role today. It is predetermined by the existence of a war threat emanating from imperialist states. Lenin repeatedly stressed the exceptional importance of this principle, he stressed the necessity to be on the alert for enemy intrigues, to display revolutionary vigilance and to always be on one's guard. The Communist Party, strictly implementing Lenin's behests, does everything necessary to provide the army and navy with the most up-to-date weapons and equipment, so that they will be in constant readiness to repulse attacks by any aggressor, to safeguard the frontiers of the Soviet state and the countries of the socialist community.

The vitality of Lenin's principle of Soviet military construction is confirmed by history. For more than 62 years the Soviet Armed Forces have been serving their people and the purpose of safeguarding the socialist Homeland. In the years of severe trials, the period of foreign intervention and Civil War, the time of the Great Patriotic War, the Soviet Armed Forces gained brilliant victories because they were built, trained and brought up on the basis of Lenin's principles of military construction.

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ARMED FORCES

RIGHTS OF SERVICEMEN DEFINED

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 27-29

[Article by Col L. Pedorov (Pyodorov): "Fully-Pledged Citizen"]

[Text]

Socialist democracy guarantees citizens broad rights and freedoms by drawing them into socio-political activity. One proof of the nation-wide character of socialist democracy is that servicemen enjoy full rights like all citizens. Article 63 of the Law on Universal Military Service reads that servicemen and reservists called up for muster enjoy complete equality of rights and discharge all the duties of citizens of the USSR envisaged by the Constitution of the USSR.

This article has a great political and legal significance. Everybody knows that the rights and freedoms of servicemen in capitalist countries are considerably restricted. In the USA, for example, members of progressive organisations are officially barred from the army. American servicemen are not allowed to join any political party or social organisation, or even to attend their meetings. On the other hand, US soldiers are obliged to attend church services conducted by military chaplains. Refusal to go to church is regarded as a disciplinary offence and is, therefore, punishable.

Negro servicemen are in a particularly deplorable position, for the entire tenor of life in the American armed forces is permeated with racism. In the American army Negroes traditionally occupy the status of "second grade" people; they constantly feel the hatred and contempt of white servicemen. If Negroes are discharged from the army as unwanted by the Command, they are automatically blacklisted and thus deprived of the possibility to get a

job. All this shows that the "freedom to express one's political views" proclaimed by the Constitution of the USA does not extend to servicemen. In reality the "defenders of democracy," as the Pentagon propagandists call the American soldiers, are the country's stepchildren.

The Soviet state grants servicemen, like all Soviet citizens, broad socio-economic and political rights and personal freedoms. Irrespective of their nationality and education the Soviet servicemen, like the rest of the citizens of the USSR, take an active part in socio-political life, in elections to higher and local bodies of state authority; many of them are deputies to the USSR Supreme Soviet, Supreme Soviets of Union and Autonomous Republics and local Soviets. They conscientiously discharge their duties as deputies, examining various problems and taking most important decisions at sessions, doing daily work as members of standing committees within the Soviets and deputies' groups, meeting the electors and showing concern for their needs.

The Soviet state provides all the necessary conditions for the personnel of the army and navy to be able to take an active part in the formation and functioning of bodies of state authority. The Law on the Elections to the Supreme Soviet of the USSR contains a number of clauses establishing the procedure for organising an election campaign in a military unit in accordance with its specifics. During election campaigns the best officers and men are ap-

pointed agitators, i.e. spokesmen for the candidates. They make reports and give talks to the working people and servicemen, and work in election committees.

There is nothing of the kind (and there cannot be) in the capitalist countries. In those countries the troops are, as a rule, brought to the state of full combat readiness to "prevent disorders," i.e. to disperse demonstrations in support of the people's rights.

Soviet servicemen's socio-political activity is also manifested by the fact that thousands of soldiers, sergeants, *praporshchiks* and officers work as people's inspectors in people's inspection posts and groups, and some of them are people's assessors in the courts.

Socialist democracy embraces the entire life of the Soviet Armed Forces and the entire process of the personnel's political and military education. The principle of one-man command, strictly executed in the army and navy, is combined with the functioning of collegiate bodies, e.g. military councils, with the activity of political bodies, Party and Komsomol organisations and with the periodically held all-army conferences of different categories of servicemen and general meetings of the personnel.

In the army servicemen get the necessary political training, many of them acquire a speciality in which they continue to work after honourable discharge, or improve their qualification in the speciality they had before call-up. Non-Russian servicemen perfect their knowledge of the Russian language. Those who wish to get special military education to become professional servicemen can enter military schools and academies. During their studies they are supported by the state. Servicemen who studied in higher or special secondary educational establishments before the army are admitted to these establishments without exams to continue their studies. Those who choose to enter a higher educational establishment after the army are admitted there on special terms. Servicemen with excellent results in combat training and political education may be recommended for preparatory courses of higher schools after being honourably discharged from the army.

Whichever of the basic rights characterising the status of the serviceman-citizen we take, it is fully put into practice, with the most favourable conditions being provided in the army and navy. The personnel have vast possibilities to engage in socio-political activity in the Party, Komsomol and social organisations, and take part in the activities of their leading organs. For instance, there were 314 servicemen among the delegates to the 25th CPSU Congress.

Citizens' exercise of their rights and freedoms is inseparable from the performance of their duties and obligations. Individual to society, society to individual — such are the interrelations between the individual and the state, which have found its expression in the Constitution. As an example we may cite the Soviet citizens' honourable duty to serve in the ranks of the Armed Forces of the USSR, thus fulfilling their sacred duty of defending the Socialist Motherland.

Like every citizen of the USSR, the Soviet serviceman has the right to health protection. This right is ensured by free, qualified medical care provided by state institutions, including free issue of medicine.

For health reasons certain active duty servicemen get free accommodation in sanatoriums and are put on special diets if necessary.

Article 46 of the Constitution of the USSR proclaims the right of all Soviet citizens, including servicemen, to enjoy cultural benefits. The army and navy have all the conditions for the exercise of this right. There is a ramified network of soldiers' and sailors' clubs, Officers' Houses, libraries and other cultural institutions. The bookstock in military libraries numbers over 112 million volumes. Each unit and each separately located subunit has film projectors and TV sets. Soldiers and sailors have free film shows at least twice a week. Highly popular are visits to theatres, museums, art exhibitions, and also servicemen's meetings with prominent authors, scientists, workers in culture and the arts.

According to the Constitution, servicemen are guaranteed freedom of scientific, technical and artistic work. Implementing this right, they take an active part in soldiers' and sail-

ors' amateur art. Amateur studios are functioning in many Officers' Houses, and young poets' and writers' unions at editorial offices of many army and navy newspapers.

Technical creative activities are developing on a large scale. Rationalisers' and innovators' groups, voluntary design bureaux and brigades for introducing technical innovations function in units and on ships.

Servicemen in the army and navy enjoy a number of additional benefits conditioned by the special character of military service. These benefits are legalised in the Law on Universal Military Service, in the Combined-Arms Regulations, in Instructions on Active Military Service in the Soviet Army and Navy, and in the orders of the USSR Minister of Defence. All servicemen receive salary, rations, uniform, and are quartered in compliance with the standards established by the Council of Ministers of the USSR, active duty servicemen being completely maintained by the state and enjoying all the above kinds of subsistence free of charge.

Military service in the ranks of the Soviet Armed Forces is held in particular respect by the people due to its great social significance. Soviet servicemen have vast possibilities to improve their political and special knowledge, to extend their general world outlook and to enjoy cultural benefits.

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ARMED FORCES

POLITICAL, MILITARY LEADERSHIP PRINCIPLES

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 29-31

[Article by N. Gusev: 'Unity of Political and Military Leadership']

[Text]

THE COMMAND personnel exercise a leading role in developing and strengthening the Armed Forces of the USSR. They carry out the ideology and policy of the Communist Party of the Soviet Union and Soviet state in the forces, they train and educate the men. The fighting capacity, combat readiness, level of military science and art depend largely on their standard of training and ability to organise the servicemen's combat training and political education.

The political and military guidance of the Soviet Armed Forces are effected in close unity. This is manifest at all levels and in all links of military development, from the elaboration of military doctrine and to the organisation of unit and subunit control.

The Leninist principle of united political and military control calls for concerted effort on the part of commanders and political workers, for unity of ideological and organisational activity. The CPSU lays on the command personnel the responsibility for the political consciousness and morale of the military collectives, their level of combat training, for explaining to the men the ideology and policy of the Party and for mobilising their efforts for the accomplishment of current combat training tasks.

The principle of democratic centralism, which in the Armed Forces has specific features determined by the purpose and activity of the army and navy, stems from the unity of political and military guidance. The fundamental principle of Party leadership is its collective character. In contrast

to this, military guidance is based on strict centralism expressed by one-man command. Operational and tactical troop control is effected in the form of orders and instructions which must be executed implicitly, without discussion. All command, political, engineering-technical and administrative-supply personnel both in the army and navy are appointed. The principle of electiveness applies only to Party and Young Communist League organisations in the army and navy.

All the troop control functions are concentrated in the hands of the one-man commander. At the same time he is assisted in his work by political organs, Party and YCL organisations. He relies on the experience and knowledge of the entire military collective. The Armed Forces of the USSR have bodies of collective guidance, which are the Higher Military Council, military councils of the districts, groups of forces and fleets. The military councils examine and solve collectively essential questions bearing on the life and functioning of the forces. Their decisions are carried out through the orders of the commanders, so that the consistent implementation of the principle of one-man command is ensured in the operational and strategic element of military control.

To cope with the difficult tasks of military development Soviet military leaders and officers master the art of scientific guidance, training and education of personnel. Materialistic dialectics forms the theoretical basis of their many-sided activity. It equips every military leader with the scientific method of knowledge of reality. It enables him to make an objective appraisal of phenomena, to penetrate deeply into the essence of current

events and to see things in perspective. Commanders and political workers make persistent efforts to acquire the Leninist style of work, which is a system of the most rational logically interconnected methods for fulfilling the various tasks in the combat training and political education of the forces.

Soviet officers have always been distinguished for their communist consciousness and profound knowledge of Marxist-Leninist theory. They are firmly convinced of the soundness of the ideology and policy of the CPSU and purposefully implement its ideas and directives. Guided by Marxism-Leninism in their work, Soviet officers develop in the men a sense of responsibility for the building and defence of communism, devotion to the interests of the Party and people and an attitude of irreconcilability in the struggle against bourgeois ideology.

Ideological devotion and Party principledness help commanders and political workers to reveal the shortcomings in the training and education of servicemen, to strengthen discipline, to eliminate oversimplification and indulgence in combat training, to appraise objectively the state of affairs in a subunit, to combat conceit and complacency. In keeping with Lenin's behests the CPSU requires that military personnel should display a critical approach to developments, respond to criticism in the Party spirit and take timely measures to remove shortcomings.

To ensure the defence of the Homeland the command personnel meticulously implement the requirements of Soviet laws, the Oath of Allegiance, military regulations, manuals, instructions and orders, and cultivate in units and on ships order and firm military discipline in conformity with the regulations.

In training and educating their subordinates and in presenting high requirements to them the commander sees to it that every soldier and seaman acquires skill in his speciality and becomes physically strong and courageous, capable of carrying out his duty in defence of his socialist Homeland.

The regulations of the Armed Forces oblige commanders and superiors to take a thoughtful approach to the needs of their subordinates, to look after their comfort, to meet their material and cultural requirements. A commander's exactingness should be combined with respect for the personal dignity of the men.

The duties of a Soviet officer are diverse. He will only be able to cope with them if he is efficient, and exhibits a concrete and purposeful attitude towards his work. Efficiency and organisation help secure the aims set with the least ex-

penditure of effort and means. The officer should not only possess profound professional knowledge, special skills in methods of training and education, he must also be able to concentrate his efforts on the cardinal tasks of the moment.

To effect concrete and purposeful guidance means to assign tasks to subordinates at the right time, check their fulfilment, see that once a thing is begun it is carried through to the end, provide aid immediately where and when needed, display firmness and confidence in success.

Stressing this essential quality of a leader Comrade L. I. Brezhnev, General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, wrote in his book "Rebirth":

"A leader is always in the public eye, which is why he must never show that he is at a loss, or reveal any weakness. Whatever is on his heart, he must keep calm and collected, be cheerful and make others feel the same."

Efficiency has nothing in common with administration by mere injunction, bureaucracy and paper-style guidance. By effective organisational work among the masses of servicemen commanders and political workers should save time, try to avoid interfering with the daily routine, settle matters quickly, avoid long and meaningless speeches at meetings, avoid hasty decisions and actions, petty tutelage and incompetent interference in the affairs of subordinate commanders and organisations, display reasonable initiative and independence.

The style of guidance employed by Soviet officers is characterised by a scientifically substantiated creative approach to the solution of urgent problems. Proceeding from the revolutionary changes in the military field, from the concrete situation and conditions, the command personnel resolutely discard obsolete forms and methods of work, sum up and introduce advanced experience in the practical training and education of the servicemen. They adhere to Lenin's instructions on combating trite methods, formalism, dogmatism, and subjectivism in leadership and on paying keen attention to the study of practical experience. V. I. Lenin taught that varied methods for the achievements of set aims should be systematically, persistently and repeatedly tested, compared and studied.

The scientific approach and creative attitude a Soviet officer should adopt towards his work imply profound all-round analysis of the soldiers' life, and of the practice of training and educa-

tion. Such an analysis enables the officer to determine positive elements and progressive features and to introduce them in practice.

Soviet military personnel demonstrated superb skill in troop control during the stern period of the Great Patriotic War (1941-45). This was convincingly proved by the numerous brilliant strategic operations the Soviet military leaders carried out at the time. The rout of the Hitler forces at Moscow, the encirclement and destruction of Field Marshal Paulus' more than 330,000 strong army at Stalingrad, victory in the battle of Kursk and subsequent large-scale offensive operations revealed the combat maturity and superiority of the entire Soviet officer corps, the courage and heroism of commanders of all grades. During the Great Patriotic War over 7,000 officers, generals and admirals were awarded the title of Hero of the Soviet Union.

Marshal of the Soviet Union D. F. Ustinov, Member of the Politbureau of the CPSU Central Committee, Minister of Defence of the USSR, remarked:

"The results of the war brilliantly confirmed the superiority of our weapons and vividly demonstrated the superb skill of the command and political personnel, their unexcelled organisational abilities, staunchness, courage and fighting skill."

The political workers were the heart and soul of the army and navy. They developed in the men the will to secure victory, daring and valour, readiness to defend the Homeland without sparing

their lives. By inspiring words and deeds, by setting a personal example the political workers led the men in battle, they found the most suitable forms and methods of work in the given situation.

Leonid Ilyich Brezhnev was a political worker of this kind. Holding such army posts as deputy chief of the political department of the Southern Front, chief of the political department of the 18th Army, chief of the political department of the 4th Ukrainian Front, Comrade Brezhnev took an active part in elaborating and executing the plans of several large-scale operations, in hard-fought battles for Rostov-on-Don, Tuapse, Novorossiisk and Kerch. L. I. Brezhnev courageously fought for the liberation of the Ukraine, for the delivery of the peoples of Romania, Hungary, Poland and Czechoslovakia from fascist slavery. He remembers many combat episodes and events. Among them were the events characterised by exceptional strain and heroism of the Soviet soldiers on the Malaya Zemlya — the legendary bridgehead near Novorossiisk. Leonid Ilyich gave an account of these events in his book "Malaya Zemlya."

At present the Soviet Armed Forces have a politically mature, professionally competent officer corps. Over 90 per cent of the officers are Communists or YCL members. More than half of them have higher military or special military education. They successfully lead the forces, working to raise their level of combat readiness to guarantee an immediate rebuff of any aggressor.

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ARMED FORCES

DIVER TRAINING DESCRIBED

MOSCOW SOVIET MILITARY REVIEW in English No 6, June 1980 pp 34-35

[Article under the heading "Heroism, Courage, Gallantry", by Maj N. Bubelev: "Divers"]

[Text]

THE RIVER is rough. Waves are breaking against the steep bank. The sky is overcast. In silence the sappers watch Sergeant Gennady Chernov getting ready to submerge. He seems clumsy and slow in his diving suit. Usually, a smile seldom leaves his face, but now he is very serious and concentrated. He has been assigned a difficult mission: to locate and fasten a wire rope to a pile driver which fell into the water during bridge launching.

Private Pozdnyukov has already been under water, but to no avail.

Now it is Chernov's turn. In spite of the swift current and poor visibility he forges ahead, inspecting the river bed attentively. Suddenly his feet plunge into something soft.

It is a silt-filled hollow. The pile driver may well be hidden there. Walking a little farther, Chernov discerns a large metallic object half covered with silt. He gives the signal for the wire rope. The rest is just a matter of practice.

Some time later Gennady Chernov distinguished himself again by fulfilling one and a half norms in making lanes through underwater mine fields. For his skillful actions he was commended by the commander.

One cannot acquire high skills overnight. There are many surprises under water, each involving a risk and calling for self-possession, a cool head and careful calculation. Sergeant Chernov spared no pains to acquire the necessary qualities. From the very beginning he was tutored by diving instructor Preporshchik Vladimir Sidenko.

In the more than ten years of his service as a diver Sidenko has been in many critical situations and has managed to save men's lives and equipment. There have been times when only his skill and coolness decided the outcome.

Once during a winter exercise a heavy tracked vehicle got stuck in a bog. It was necessary to get to it and attach a wire rope. Sidenko was perfectly aware that it involved a risk, so he decided to do it himself. He began to submerge slowly and cautiously into the thick mire. Having inspected the functioning of the valves, breathing device and signal cable, he started the search. He moved to the right, to the left, to the right again. Groping with his hands in the space around him, Chernov discovered nothing but sticky cold mud. A few moments later, however, his hand touched something hard. That was

the vehicle. He signalled his find to the surface.

Emerging from the bog, Sidenko reported his ideas on how to recover the vehicle.

On the next dive he quickly found the vehicle, but to secure a heavy wire rope to the towing hook of the vehicle tipped over on one side in the peat squash without a point of support proved a very difficult task. The first attempts failed. Then the diver decided to attach the wire rope by approaching the vehicle from the other side. Suddenly he felt a heavy load on his back — the wire rope was pressing him down into the silt. Locating the vehicle's track link overhead, Sidenko gripped it and, swinging back and forth, slipped from under the rope.

"I was dripping with sweat, I felt my strength almost exhausted, but I just had to fulfill the assignment," Vladimir said afterwards.

He stood up to the situation and succeeded in attaching the rope to the hook.

It proved no easy matter to lift the heavy vehicle from a 20-m depth. Sidenko made another four dives. The last was the most difficult and dangerous. When he was surfacing, communication with the standby diver was interrupted, and he could not get to the specially prepared exit. But Vladimir did not lose his head. His vast experience and confidence helped him to emerge victorious. Very calmly, little by little, he cut his way with a knife in the frozen soil.

Owing to the diver's courageous and resolute actions, the combat equipment was saved, and Praporshchik Sidenko was decorated by the military district commander.

Vladimir Sidenko has spent two thousand hours under water. Among the numerous commendations, diplomas and other awards one is particularly memorable. He received it for fulfilling a government assignment together with Sergeant Gennady Chernov. They were to detect and extract shells which had been lying on the bottom of a marshy patch in Moscow's Sokolniki Park since the Great Patriotic War.

There are no trifles in a diver's work. Each dive is a test of courage and endurance. That is why Vladimir Sidenko is so strict and scrupulous in training his subordinates, imparting to them his knowledge and experience.

Special training is the object of great attention in the subunit. Preparation for it begins with stowing the outfit and equipment. Then Sidenko thoroughly checks serviceability of diving suits, overalls, loads, watercraft, telephone and pump. He details diving crews in good time and gives them the relevant instructions. Considerable time is allotted for studying safety precautions and theoretical questions. Thorough training contributes to enhance the divers' proficiency.

At a training period conducted by Praporshchik Sidenko the divers worked up submerging, movements under water and surfacing. Private Vladimir Kharitonov raised his hand as a signal of readiness to submerge. Sergeant Chernov, the standby diver, tapped lightly on Kharitonov's helmet, which meant "submerge." Private Kharitonov went down, but not for long. The instructor ordered him to surface because the gas mixture was escaping from the helmet valve.

True enough, the left valve was loose in its socket. Sergeant Chernov corrected the defect and Kha-

ritonov dived again. This time no bubbles came to the surface.

When his feet touched the bottom, the diver looked around. The signal cable was free and there were no extraneous objects in the way. He reported his readiness to carry on.

Sidenko ordered Chernov to direct the diver straight ahead. Kharitonov understood the signal and executed the command correctly. Then he was ordered to move to the right, then to the left.

The serviceman was also precise in his actions when ordered to surface. Errors are intolerable in surfacing, because in rising from great depths a diver may sustain a barotrauma.

On receiving the command Kharitonov felt for the valve on the compressed air cylinder and turned it clockwise. A special chamber raised the diver to the surface. The surfacing was performed correctly.

The training went on. The divers descended under water one by one. Before each dive Sidenko gave the necessary instructions and advice, and checked the condition of the diving gear personally.

Sidenko paid special attention to safety measures and teamwork between the diver and his standby.

"The divers must trust each other," Sidenko says. "This is a law. Very often the life of the man under water is in the standby diver's hands. Therefore, the standby diver must be extremely attentive, constantly watching his comrade's position under water."

Submerging and moving under water involve great moral and physical strain. But whatever the difficulties, the diver must never give way. After all, it's his job.

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ARMED FORCES

PHYSICAL TRAINING METHODS

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 61-62

[Article by Col Yu. Demyanenko, Cand. Sc. (Pedagogy): "For Better Combat Training"]

[Text]

Extreme physical loads, nervous and psychological stresses which the personnel of motorised infantry subunits have to withstand during drills and exercises considerably hamper the fulfilment of combat training missions by young servicemen. Firing and manoeuvring on the battlefield suffer and speed and precision in handling weapons and combat equipment deteriorate. This depends on the size and nature of loads, professional training standard, physical training level, physical development, state of health and other factors. All other conditions being equal, the physical training standard is important, often, indeed, decisive.

For example, at ordinary lessons physically trained hardy soldiers and sergeants of motorised infantry subunits perform actions involved in manoeuvre on the battlefield almost 20 per cent quicker than those who are undertrained physically. In the former case combat training indices at exercises or during an offensive are not reduced at all or only insignificantly. Under similar conditions young soldiers generally act much more slowly than at lessons. In manoeuvring types of battle the difference in performance of

physically well trained and poorly trained soldiers may be 35 per cent or even more.

As a rule, until fatigue appears under normal conditions there is no difference between physically well trained and poorly trained men as regards submachine-gun firing. However, the difference is quite perceptible during an offensive due to physical loads and nervous and psychological stresses. Accuracy of submachine-gun firing in the case of young soldiers is considerably reduced, whereas it is practically unchanged in the case of physically trained servicemen.

Certain commanders of motorised infantry subunits, particularly those with a short term of service, forget about this. In planning and conducting physical training they sometimes underestimate its significance for improving results in other combat training subjects. They sometimes regard physical training only as a means for improving physical condition and acquiring skills in performing special exercises and fulfilling the requirements of combat training standards.

Physical training becomes more effective if officers realise the close connection between physical train-

ing and other combat training subjects, and plan it so as to facilitate assimilation of techniques for handling combat equipment.

During the first month or two newly drafted soldiers gradually adapt themselves to military service. During this period servicemen's cardiovascular activity undergoes changes, their physical well-being and spirits deteriorate. However, this is not the case with all.

Those who went in for sports before call-up and were well developed physically show little or no change for the worse in the organism's functioning. This is due to the fact that sport adds to the draftee's experience. Physical steeling helps him to cope with the intensive motor activity characteristic of military service, whose loads exceed those of everyday civilian life.

Therefore, the men's physical loads should be planned so as to reduce the time necessary for them to adapt themselves.

In one subunit it was decided to increase physical loads at morning physical exercises gradually but quickly, and to organize a series of sports competitions. The physical training syllabus was also revised: more than half the physical training lessons were held during the first two months.

Less time was given to working up new elements but the density and intensity of such lessons was increased. Subsequently, when the number of physical training lessons was reduced and more time was allotted to gymnastic apparatus and hand-to-hand fighting the intensity of morning physical exercises and sports competitions on days off was increased.

Owing to this young servicemen did not experience any negative effects in the initial period of service and their adaptation took 2-3 times less than usual. Besides results in other training subjects considerably improved.

Selection and distribution of motorized infantry subunits personnel according to military specialties are most effective for enhancing subunits' combat readiness. But selection on the basis of servicemen's physical training level is no less important.

However, certain commanders hold that selection according to physical standards is not practicable, for any soldier can be taught to do physical exercises. This opinion is hardly justified. To enhance combat readiness, it is very important that crews and teams should have approximately the same physical training level.

Handling intricate armament calls for team skills, the speed and quality of work being determined by physically weakest crew members. In these conditions lack of endurance and promptness of action on the part of individual soldiers may affect the results of the whole collective. Crews should hence be made up of soldiers with approximately equal physical qualities.

Then the question arises whether or not such selection leads to deliberate division of crews and teams into advanced and backward ones. It is true that in the beginning there will be a marked difference between crews, but subsequently they will level out. The reason is that if all the members of a crew have approximately the same physical training level, it is much easier to work out common forms and methods for quickly improving their physical condition. Of course, an individual approach should not be neglected either.

High physical training standards allow the process of acquiring professional skills to be speeded up, because improvement of many essential psychological qualities accompanies improved physical steeling and a sound physiological basis is created for maintaining high mental activity. As a result, the instruction process can be pursued more intensively.

The shorter servicemen's period of training in their military specialties and the more complicated their professional motor skills, the more important the initial physical training level becomes. With long training periods the commanders can constantly match servicemen's physical training standards and professional skills are also consolidated by numerous repetitions. With short training periods shortcomings in the development of psychological and physiological qualities, which are closely connected with physical qualities, may delay the process of mastering one's specialty. On the contrary, sport skills contribute to improve combat skills.

The 1978 Manual of Physical Training in the Soviet Army and Navy stipulates that physical training must be included in the plans of the other combat training subjects. Previously it happened, for example, that grenade throwing was planned to be carried out at physical training lessons only after the soldiers had already practised it during fire training, whereas the opposite would have been much more reasonable.

A comprehensive approach to instruction presupposes close interconnection of all combat training subjects as regards both contents and physical loads. Developing mo-

tor skills, endurance, promptness, strength and adroitness at physical training lessons should aim at preparing soldiers to perform specific actions at tactical and firing training and during exercises. To this end, physical training instructors must be aware which training phases of subunits are most important and plan physical training accordingly.

A subunit was to perform a long march on infantry fighting vehicles. Experience shows that this kind of combat activity imposes increased strains on servicemen's vestibular apparatus. On the eve of the march, during a physical training lesson, the subunit commander checked the young servicemen's resistance to road sickness. Such simple exercises as numerous forward rolls and turns revealed which servicemen had poorly trained vestibular apparatus. Special physical exercises helped them to get ready for the exercise in good time.

We could cite other examples of competent physical training planned with due consideration for tactical exercises on skis, negotiating water barriers and in other conditions. Experience shows that if physical training lessons take into account the requirements of combat training, they will contribute to a quick improvement of the men's combat skills.

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FLIGHT INSTRUCTION METHODS

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 41-42

[Article by Col N. Debda, Cand. Sc. (Military), Military Pilot-Instructor 1st Class: "Instructor's Skill in Method"]

[Text]

Aviation equipment is being continually improved and renewed. New machines, planes and helicopters, are coming into service. This naturally enhances the role of flight instructors dealing directly with pilot training.

An instructor must have a sound knowledge of pedagogy and the theory of military aviation, possess high flying skill, be proficient in aircraft piloting and their combat use and have an excellent knowledge of tactics. An instructor's work is an art requiring great professional skill based on creative spirit, deep knowledge, rich experience and proficiency in the method of training pilots both on the ground and in the air.

Teaching pilots to fly various types of aircraft in the various categories of aviation has its own specifics and final goals. It demands of the instructor a strictly individual approach to every trainee.

As is known, the mastery of any pilot, the more so of a fighter pilot, depends on his flying technique. Therefore, the instructor's primary task is to develop in young pilots skills and habits which will enable him to control the fighter plane both by day and by night in any meteorological and air situation and with the minimum of physical, moral-psychological and nervous strain. However, if the instructor concentrates only on working up flying technique, he may fail to cultivate in his trainee such qualities as circumspection and the ability to distribute his attention properly. This may affect the fulfilment of combat training missions.

The following instance from flying practice can illustrate this. An experienced instructor and flight commander had trained a young pilot to fly independently to the zone where he was to master advanced flying technique. Although the pilot had carried out all his previous flights excellently, his tutors could not help feeling anxious about their decision. The main reason for this was his exceptionally "irreproachable" flying technique which was not characteristic of the young pilots at this training stage. It was decided, therefore, that during his next check flight to the zone this trainee should be accompanied by the squadron commander. The flight commander set the pilot the task of operating independently when in the air.

During the take-off and climb the pilot operated confidently. Quickly gaining speed the aircraft disappeared in the direction of the flying zone. The squadron commander closely watched the pilot's actions. As an instructor he was worried by the fact that after their take-off the pilot's eyes always remained glued to the instruments and the horizon.

It occurred to him that the trainee was totally concentrating on irreproachable piloting. That was probably how he had lulled the instructor's vigilance and misled the flight commander as to his real training level?

The instructor decided to complicate the flight by introducing narratives. First, he "put out of order" the automatic direction finder in the nose cabin, then the gyrohorizon. However, absorbed by his piloting, the trainee failed to notice this. Whenever the flight conditions were changed by

Introducing new deviations, the pilot failed to estimate the situation in time or to foresee his future actions. This led to new deviations from normal piloting and again the pilot showed his poor response and uncertainty in eliminating them.

After the pilot had carried out his mission in the flying zone and reported to the flight control officer, he was specified the homing station flight level and reversed his course. When he was about to give his plane a final turn through some 45 degrees in order to take the runway heading, the instructor, using the frame aerial, set the direction finder pointer to zero. Failing to notice this, the pilot brought the plane onto a straight course and began to descend to the specified level. In addition, the fact that the aileron actuator was disengaged also escaped his notice.

This flight was thoroughly discussed by the instructors during the post-flight critique and at the lessons in method. All the instructors' mistakes were analysed in detail. Their attention was also drawn to the fact that they must not concentrate their trainees on mastering flying technique at the expense of other important components of a flight.

The measures developed by the squadron to further improve the flight instructor's skill in method were, at the same time, aimed at bettering pilots' professionalism. The pilot mentioned above had to carry out extra check and demonstration flights to improve his spatial orientation and piloting in critical conditions and to correct common mistakes.

The efficiency of flight training methods is based on such fundamentals as the cause-and-effect analysis of successes and search for the cause of mistakes and defects in the training of pilots and improvement of instructors' methodological skill, generalisation and drawing up of statistics concerning flight stages (elements), categories of flying personnel, types of aircraft and air situations. The results thus obtained and the experience accumulated make it possible to take mea-

sures for improving flight training methods and ensuring flight safety both for the current period and for the future.

The analysis and appraisal of a flight are perhaps the most important and intricate element of the instructor's methodological skill. For example, what should a post-flight critique begin with?

When the instructor is analysing the flight carried out by an experienced pilot who has already mastered the specified exercise, he may point out his mistakes (if any) at the very beginning of the critique. When doing this the instructor must take care not to offend the trainee by his expressions or tone of voice. He may also suggest that the pilot should analyse his own actions. But, this method should not be used with young pilots.

When criticising the actions of a young pilot, it is advisable for the instructor first to appraise the trainee's flight as a whole, point out his achievements and express confidence in his further progress in mastering new flight elements. Only after this has been done, should the instructor begin to analyse the trainee's mistakes finding their causes and giving recommendations how to eliminate them. It is also very important for the pilot to take part in discussing his flight.

Finally, it is necessary to emphasise the great importance of instructors' methodological skill in ensuring flight safety. More often than not emergency situations arise in the air through mistakes of the flying personnel. These are usually caused by pilots' failure to estimate the situation properly and take the best decision in the shortest possible time and also by their hasty and premature or excessively slow actions in a complicated air situation.

The whole history of aviation and the shaping of flight training methods convincingly testify to the decisive role of instructors' methodological skill, their life and professional experience both in solving flight training problems and ensuring safety in flight.

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MAINTENANCE OF AIRCRAFT OXYGEN EQUIPMENT

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 45-46

[Article, under the heading "Specialist's Tips", by Lt Col V. Gorlov: "Aircraft Oxygen Equipment"]

[Text]

AIRCRAFT OXYGEN equipment consists of an oxygen supply system and a high-altitude outfit. Its purpose is to ensure normal breathing under excessive pressure.

The oxygen supply system includes three lines for uninterrupted, interrupted and combined oxygen supply respectively. The uninterrupted oxygen supply line is intended both for individual and collective use. It is of simple design and does not need much care when in operation. The interrupted oxygen supply line is used only when inhaling. Care must be taken to keep this line airtight. To this end, when this line is in operation, it is necessary to check regularly the condition of its detachable connections and valves including oxygen pressure reducing valves. The combined oxygen supply line can replace either of the other two lines should it be necessary in flight.

The operation of the oxygen supply system has its specifics determined by the high chemical activity of oxygen which, in certain conditions, may become inflammable and explosive. When in contact with pure oxygen mineral and organic oils are self-igniting. It is therefore strictly forbidden to use oily cotton waste or dirty tools when operating the oxygen supply system.

It is also necessary to observe precautions when handling liquid oxygen. Porous materials impregnated with liquid oxygen become liable to explode especially when they are subjected to blows or shaking. Boiling at -183°C , liquid oxygen can injure the skin of the human body by cold if it comes in contact with any part of the body. Measures must be taken to exclude the possibility of accidental sparks close to personnel handling liquid oxygen.

Cylinders charged with oxygen at a pressure of 30-150 atm require the appropriate care.

Before charging the aircraft oxygen supply system it is necessary to check the oxygen certificate and then proceed to charging only with the permission of the unit medical officer and engineer.

The pressure in the oxygen supply system increases with an increase of the ambient temperature (as, for instance, may be the case at the moment of flight in the afternoon if the system has been charged in the morning). It is therefore advisable to charge the system to a definite pressure depending on the temperature of the environment. The maximum admissible pressure corresponding to a given ambient temperature is determined by special tables. Its value is also indicated near the charging connection of the oxygen supply system.

For perfect operation of the aircraft oxygen equipment it must be regularly maintained. Thus, during preliminary flight preparation it is necessary to check the condition and fastening of the oxygen supply units, the tightness of the on-board high and low pressure systems, the serviceability of the crew's oxygen supply system under both normal and excessive pressure and the quantity of oxygen in the cylinder. During pre-flight preparation there must also be a check of the connections between the units of the oxygen equipment and the position of both the control knobs and pressure gauge cock of the oxygen supply system and on-board oxygen line. After checking oxygen is released from the high pressure system.

Besides, scheduled maintenance operations envisage checking the airtightness of the low-pressure chamber, the pressure in the tension device of the pressurised suit depending on the degree of excessive pressure in the partial-pressure helmet, the static parameters of the oxygen pressure reducing valves and also of the valves of the oxygen supply system.

During a total inspection, which usually takes place after scheduled maintenance, the resistance of the oxygen unit to inhaling is measured.

During preliminary flight preparation external inspection is carried out to check the condition of the high-altitude outfit and the operation of all its components. Dirty places are washed with water and an alkali-free soap.

Before each flight the crew must check the adjustment and serviceability of the high-altitude outfit and the condition of the oxygen supply system. For this they proceed as follows: check the quantity of liquid and gas oxygen by instruments, make sure that the section of the high pressure system between the pressure gauge cock and the oxygen unit is airtight and check that the oxygen mask fits the face closely under both rarefaction and excessive pressure. The oxygen mask is airtight if it makes it impossible for a person wearing it to inhale with the corrugated hose pressed. Then, with the mask on, excessive pressure is built up in the oxygen unit. The mask is considered airtight if no oxygen leaks through its obturator.

The oxygen reserve of the parachute oxygen set is checked with a pressure gauge. At an ambient temperature of 15-20°C its pressure must be 150 atm. Then the parachute oxygen set is placed in the tachengurt and its automatic activation cable pin is locked.

When checking the condition of the high-altitude outfit and sets intended for use under excessive pressure one should remember that a pressurised suit must be tested by specialists dealing with high-altitude equipment.

When in the cabin, the pilot connects the oxygen hose, makes sure that the pressurised suit is properly adjusted, checks the tightness and reliability of the tension device and the serviceability of the oxygen supply system under excessive pressure.

During a high-altitude flight the crew must carefully watch the operation of the oxygen supply system by instruments and eliminate quickly any fault detected in the main oxygen supply line. Breathing oxygen must be fed uninterruptedly through the main, stand-by and emergency lines. If the oxygen pressure drops suddenly in a line, it is necessary to change over immediately to the use of a parachute oxygen set.

Watching the operation of the oxygen indicator of the interrupted and combined oxygen supply lines the pilot must take care that his breathing in and out coincides in time with the appropriate movements of the indicator flags. At a cabin altitude of 0-2 km the indicator flags may not work with sufficient precision because the pilot may somewhat neglect this requirement because he can breathe the cabin air supplied by the automixing unit.

If it is hard for an airman to breathe or if he does not feel quite well he should open the emergency oxygen supply cock. Oxygen consumption must be strictly controlled, since its supply aboard the aircraft is limited.

In case of a fire in the cabin the pilot must immediately close the automixing unit, in these circumstances it is strictly forbidden to change over to the emergency oxygen supply because this may lead to oxygenation of the cabin air.

When in flight, the pilot watches any change that may occur both in cabin altitude and pressure. At a cabin altitude of 8-10 km the pilot is supplied with pure oxygen and above 12 km the uninterrupted oxygen supply and excessive pressure mechanisms are brought into operation automatically in order to ensure normal oxygen supply of the pilot and his recompression should the cabin become depressurised.

The pilot must be well aware that if the cabin loses its pressurisation at a cabin altitude over 12 km, the build-up of pressure in the oxygen mask or partial-pressure helmet is somewhat delayed compared to the pressure created for the initial expelling of expanding gases from the pilot's lungs and partial-pressure helmet.

In case of cabin depressurisation the time one can remain at a cabin altitude more than 12 km is limited. The appropriate time of exposure and the altitude to which the pilot should descend are specified in the instructions for flying personnel.

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GROUND FORCES

MOTORIZED RIFLE BATTALION TRAINING

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 24-26

[Article, under the heading "Combat Training", by Col V. Kotikov: "Attack from March Column"]

[Text] Before passing over to the offensive from a march, the troops disperse in the indicated areas at a certain distance from the front line and then, having completed all necessary preparations in the set time, begin to advance towards the enemy defences. At first they advance in columns and then deploy into pre-battle or battle formation and attack the enemy.

Frequently a Mts Inf Bn in the departure area is disposed by companies along the route of movement or on roads and cuttings adjoining it in a formation ensuring a rapid and organised advance.

The battalion CO indicates the places for his companies and attached subunits, organises air observation and determines the method of firing at an air enemy, gives instructions and maintenance of combat vehicles, preparation of weapons and personnel for the forthcoming battle, and replenishment of supplies. He organises the offensive secretly, in a short time and, as a rule, on the terrain. The organisation and character of the enemy defences and also the terrain in the direction of the offensive to the mission limit of advance is thoroughly studied on the map.

On-the-spot reconnaissance is carried out with company commander and commanders of attached (supporting) subunits. During the reconnaissance they study the enemy defences in the direction of the offensive and on the flanks, the layout of the FERA, location of strong points, fire weapons and obstacles and also the installations to be destroyed by the weapons of the senior commander. The battalion CO also defines on the spot the direction in which the main effort will be concentrated, the combat formation of the battalion, combat missions for companies and attached subunits, how to neutralise and destroy enemy weapons, particularly anti-tank ones, observation posts and other targets by fire of the artillery and tanks detailed for direct fire and also by fire of the artillery attached to the battalion; points out where and how many lanes must be cleared through obstacles; studies the route of advance to the assault position, deployment lines and for an attack on foot determines where the subunits will dismount, and what use will be made of fire by infantry fighting vehicles and armoured personnel carriers.

Organisation of cooperation of motorised infantry subunits with tanks, artillery and aviation is of paramount importance. The battalion CO indicates how the results of air attacks and artillery fire will be exploited and also coordinates the actions of the companies and attached and supporting subunits during the fire barrage, the attack and in the pressing home of the attack.

When advancing towards the area of operation of a tactical air landing force, the battalion CO gives instructions for linking up with it, signals of mutual identification and radio information for communications.

Before the advance from the occupied area the battalion CO checks the readiness of companies and attached subunits for the offensive, their supply with everything necessary for the battle and reports to the regimental commander.

At the appointed time the battalion CO announces the time of the beginning of fire preparation and the time of the attack on the forward edge.

In the departure area the subunit commanders exercise control over subunits by personal contact and also with the help of mobile communication equipment. Radio is used only to receive the warning signals.

At the beginning of the advance from the waiting area the subunit commanders move at the head of their columns and control them from infantry fighting vehicles or APCs by the established signals. Radio is used only when fire preparation has begun.

The battalion columns when advancing to the assault position must ensure rapid deployment into prebattle and battle order. For this purpose the companies advance with the reinforcing means and the tanks attached to the Mts Inf Bn at the head of the battalion column.

An artillery battalion assigned to support the battalion, occupies fire positions so as to be ready to open fire not later than one hour before the beginning of the fire preparation. At that time guns and tanks detailed for direct fire advance and take up previously prepared fire positions. Tanks detailed for clearing lanes advance at the assigned time to the designated place, where before the arrival of the main forces they hook on the sweepers brought there beforehand.

The subunits pass exactly at the appointed time the initial point and the lines of deployment into battalion, company and platoon columns. They move at maximum speed, allowing no gaps in the column and no stretching out. During the movement camouflage measures are strictly kept to and observation of the ground and air enemy and the commanders' signals is carried out.

The second echelon (reserve) of the battalion up to the deployment line into company columns advances after the companies of the first echelon in the general battalion column, while logistical and technical service subunits follow the second echelon (reserve).

If the enemy delivers a fire strike during the advance to the assault position the battalion rapidly abandons these areas and continues its movement. To replace first echelon subunits which have lost their fighting efficiency, the battalion CO uses the second echelon.

If attacking on infantry fighting vehicles or APCs, when the enemy antitank weapons are reliably neutralised, the motorised infantry subunits deploy into combat line after negotiating obstacles.

If carrying out the offensive on foot the motorised infantry subunits dismount from infantry fighting vehicles or APCs at the indicated places. Dismounting of the personnel is carried out as close as possible to the enemy FEBA and in places covered against machine-gun and antitank fire.

Infantry fighting vehicles or APCs using accidents of the terrain advance in leaps from line to line after the friendly subunits, supporting the attack with fire.

Artillery and mortars fire at the enemy trenches on the forward edge and in the near depth and as the tanks and motorised infantry subunits reach the line of safety from friendly artillery shell bursts they shift fire to the depth on the battalion CO's command.

Exactly at the time appointed for the attack tank and motorised infantry subunits rush to the enemy FEBA, destroy the enemy in the strong points and continue to advance in the depth without stopping.

When the enemy strong points on the FEBA and in the near depth are captured, the battalion sends out a reconnaissance patrol.

In the depth of the defences the enemy most frequently offers resistance in separate strong points. Therefore the attacking subunits make a broad manoeuvre with manpower and equipment and daringly approach the enemy flanks and rear. The subunits advance, as a rule, on infantry fighting vehicles or APCs. They mount into vehicles immediately after the enemy ceases organised resistance.

When fighting in the depth of the enemy defences, it is very important to exploit the results of fire blows as soon as possible. For this purpose the subunits direct their main effort at capturing the areas at which the blows were delivered. During the battle all must keep pace with the advanced subunits.

The subunits capture the enemy strong points on the move, advancing towards them under cover of artillery, mortar, tank fire and fire of infantry fighting vehicles, armoured personnel carriers and small arms and making use of the camouflage possibilities of the terrain.

On difficult ground for tanks and also in case of slashings and road blocks the advancing motorised infantry subunits can pass the tanks. As these sectors are negotiated, the tanks again precede the motorised infantry subunits and continue the offensive.

To press home the attack (usually after fulfillment of the initial mission) the battalion CO commits to action the second echelon (reserve), which advances on infantry fighting vehicles or APCs in prebattle formation at up to 2 km from the first echelon companies. With the commitment to action of the second echelon (reserve) the battalion CO reconstitutes the reserve.

During the offensive enemy counterattacks are most likely. Counterattacks by small enemy forces are repulsed by fire on the move. Counterattacks by large enemy forces are beaten off by concentrated fire of all forces from stationary positions. Having detected the advancing enemy, the battalion CO takes a decision to repulse the counterattack and assigns missions to subordinate subunits. To beat off counterattacks successfully, tanks and infantry fighting vehicles or APCs take up fire positions behind the nearest cover, the personnel of the motorised infantry subunits dismount and take up positions ensuring advantageous conditions for destroying the enemy and cooperating with the tanks. The counterattack having been beaten off, the battalion's subunits resume the offensive.

When the enemy starts retreating the subunits immediately pass over to pursuit.

The battalion CO specifies the mission for a fighting reconnaissance or sends additional reconnaissance and assigns missions to subunits for pursuit. He reports his decision to begin pursuit to the regimental commander.

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GROUND FORCES

MOTORIZED INFANTRY HELIBORNE EXERCISE

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 27-29

[Article, under the heading "Combat Training", by Col Yu. Chernyshov: "Tactical Airborne Landing"]

[Text]

A MOTORISED INFANTRY subunit is generally chosen for a tactical airborne landing. It is airlifted by helicopters to the enemy rear where it carries out its combat mission in close cooperation with the forces advancing from the front. Thanks to the high level of their firepower and manoeuvrability, tactical airborne forces may be assigned the following missions:

- capturing and holding important enemy installations (bridges, fords, passes), areas, sectors and bridgeheads located in the depth of the enemy defences;
- capturing and destroying powerful enemy weapons;
- repulsing enemy counterattacks in cooperation with the subunits advancing from the front;
- capturing and holding advantageous lines (areas, bridgeheads) to ensure the landing of amphibious forces and the advance of friendly troops along the seacoast;
- capturing and destroying enemy control posts, electronic devices and logistic installations in order to disrupt his logistics.

To cope with its task the airborne force usually has to fulfil immediate and subsequent missions. The former consists in destroying the enemy, capturing and destroying specified installations and the latter in holding the captured objective until the arrival of the forces advancing from the front or delivering a blow in the direction of their advance and sometimes capturing a new objective (line).

The strength of an airborne force depends on the mission set to it, the situation taking shape and the landing equipment available. A motorised infantry battalion detailed to operate as an airborne force can be reinforced with 1-2 artillery batteries, an ATGM platoon and a sapper section. If the airborne force has to negotiate a water barrier, it should include 2-3 divers to reconnoitre the river bed, bridge pillars and other hydraulic structures.

The depth, area and time of landing the airborne force depends on its mission, the situation observed in the landing area, its strength, the senior commander's ability to support it and the airborne force's ability to operate independently till its linking up with the advancing forces. As was proved by the experience of the Great Patriotic War and exercises tactical airborne forces usually have to operate independently for several hours before they meet up with the main force coming from the front. However, the situation may sometimes require the airborne force to stay behind the enemy lines for several days.

For instance, in September 1943 a 100-men strong airborne detachment under Major Fofanov was landed on the right bank of the Dnieper and had to operate in the Nazi rear for 27 days.

The distance of the airborne force's departure area from the forward edge is determined by the situation and in the first place by the terrain conditions. This distance must ensure that the airborne force stay in the air for the shortest possible time. However, the departure area should be located far enough from the forward edge

In the case of night operations the Bn CO additionally specifies the rules for using illumination means and night vision devices, and indicates identification signs.

Practice shows that an airborne force should prepare for a landing in the shortest possible time. Therefore, simultaneously with organising military operations the Bn CO and his staff must train the personnel in landing and airlifting their weapons and combat equipment.

The landing procedure includes helicopters' takeoff, flying and landing the airborne force in the enemy rear. When in flight the airborne force is protected by the supporting aviation and artillery, the former providing protection in flight and in the landing area and the latter destroying enemy AA weapons from temporary positions located close to the forward edge.

The airborne force must be highly active and manoeuvrable in action, take the enemy by surprise, and show resolve and daring. Depending on the situation and the mission assigned the airborne forces can engage either in offensive or defensive encounters. After its landing in the enemy rear the airborne force generally assumes the offensive. Having seized the specified objective (line) it holds it till the arrival of the forces advancing from the front.

Here is an instance to illustrate the airborne force's actions in the enemy rear. A Mts Inf Bn under Captain Makarov was set the mission to land in the "enemy" rear, capture a road junction and a bridge over a water barrier (see Sketch). According to the Bn CO's decision taken together with the helicopter subunit commander, the Mi-8 helicopters carrying the infantrymen were the first to take off, their mission being to seize the bridge and the road junction. They were followed by the Mi-6 helicopters carrying weapons and

combat equipment. The machines flew at low altitude. To deliver a surprise attack, the battalion landed behind a wooded hill, i.e. at a certain distance from the objectives to be captured.

Immediately after landing the commander sent out a recon party in the direction of the specified objectives. Having detected an "enemy" company taking up positions near the road junction and up to a battalion 12 km away in Zakharovo, he decided to strike at the defending company in the front and on the flank with two companies and thus destroy it. The third company was to assume the defensive on the western bank of the Bystritsa River in order to prevent the "enemy" battalion in Zakharovo from reaching the battle area.

In accordance with the Bn CO's decision the airborne force began to advance unobserved to the designated objective deploying on the move into platoon columns and subsequently adopting battle formation. It was successful thanks to the perfectly organised battle, its ability to advance swiftly and unobserved in order to achieve surprise and also thanks to the artillery and air support. After the road junction and the bridge over the Bystritsa had been seized, the airborne force commander took measures to consolidate the captured line by organising observation and a fire system and installing obstacles. Under the circumstances the commander used advantageous terrain sectors and "enemy" engineer structures which were intact. When the "enemy" launched a counterattack he encountered a stubborn all-round defence which had been organised by the airborne force in a short time and thus he had to withdraw. Then the tactical airborne force repelled several more counterattacks and continued to hold the captured line till the forces advancing from the front arrived.

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GROUND FORCES

PLANNING, CONDUCTING TACTICAL EXERCISES

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 34-35

[Article, under the heading "Combat Training", by Col A. Akimov: "A Tactical Exercise with Field Firing"]

[Text]

A tactical exercise with field firing may be unilateral or bilateral. In the first case fire is delivered by one side, the other being designated only by the layout of training targets.

There are certain specific features in preparing for and conducting a tactical exercise with field firing. Apart from the officials present at an ordinary exercise, a target situation officer and a fire umpire are appointed. When fire is delivered by artillery or mortar subunits, a control group (groups) is provided, and operators, simulators and signalmen are appointed for target designation and fire simulation. A duty cordon is detailed to ensure safety of firing.

Preparation for a tactical exercise with field firing (as for one without it) starts with specifying the initial data.

This is followed by working out the plan of the exercise (generally on the map). Unlike the plan of usual exercises, it indicates which subunits are taking part in the field firing, ammunition consumption rates, firing area, the enemy grouping and nature of his combat actions, the main direction of the firing and rate of opening and ceasing fire. All these data form the basis for working out the target layout (see Sketch).

Producing the target layout is a most important aspect of preparing for and conducting a tactical exercise with field firing. It is worked out taking due account of the tactical concept, the organisation and nature of combat operations of the simulated enemy, the manpower and equipment allotted for the field firing, the subunit commanders' likely decisions and real actions.

The target layout must enable subunit commanders to acquire firm practical skills in organising and conducting reconnaissance, in evaluating and selecting targets, types of weapons and firing methods, in assigning firing missions, in observing the results of the firing and in fire adjustment.

The targets selected must correspond to the purposes for which the given subunit is used in combat. For instance, for tanks models of armoured targets, antitank guns and ATOMs are set out, for artillery firing from indirect positions a mortar battery and a counterattacking group of tanks and infantry are simulated, and for AA subunits firing at aerial targets use is made of radio-controlled targets.

The efficiency and instructive value of a tactical exercise with field firing largely depend on the verisimilitude of the target situation. That is why targets must appear unexpectedly, they must move, fire, and fall when hit. The targets' dimensions and shape must correspond to those of real targets.

Enemy automatic small-arms fire is generally imitated by blank cartridges fired from simulation submachine guns, one submachine gun for 2-3 groups of targets. Gun, tank and grenade launcher fire is best imitated by setting off explosive charges, simulation grenades and smoke-puff charges.

The target layout indicates the number of targets and amount of ammunition, location and numbering of targets, sequence and duration of target display, firing and cease fire lines, methods and duration of target illumination at night, location of control posts and organisation of communication for control of the target situation.

Proceeding from the tactical concept, the layout shows in the first place the basis of the target situation which will be simulated during the firing. For example, during a company tactical exercise with field firing, when breaking through the "enemy" defences from march column, the layout shows a motorised infantry platoon of the company holding defences on the forward edge, and a strong point up to platoon strength of this company's second echelon. Simulated in the depth of the defences is the pla-

toen strong point of the second echelon company of the battalion, and also the line from which the counterattack of the reserve is simulated. Besides, it is practicable to indicate one or two withdrawing groups, preferably behind the company strong point on the forward edge.

Calculating the required number of targets is also of considerable importance. In making the calculation, account should be taken of the enemy's organisation, his likely losses in preceding battles and during the fire barrage. Besides, the amount of ammunition and the number of firers and types of weapons should also be reckoned. At a tactical exercise with field firing, in which a motorised infantry company reinforced with a tank platoon takes part, 80-100 targets are normally displayed for small arms, 10-12 for tanks, and 5-10 for artillery.

Here is an example of how the number of targets for a reinforced motorised infantry company in the offensive can be reckoned. The estimate is generally made by areas (elements of enemy battle formation) with due consideration for the nature of the combat operations during the company offensive. There are three areas in our example: the company's platoon strong point on the forward edge, the strong point in the depth of this company's defences, and the strong point of platoon strength of the battalion's second echelon company.

A platoon is holding defence in the first area. The number of the enemy troops and fire weapons are calculated in accordance with the organisation. If we assume that enemy losses during preceding battles amounted to 20 per cent and that he lost another 25 per cent during the barrage, the platoon's defence will be simulated by approximately 27 targets, including 15 soldiers with carbines, 5 machine guns, 3 antitank grenade launchers, 2 APCs and 2 ATGMs.

The target situation is created on the basis of objectives. One objective may include several targets. One target may designate an important objective. A motorised infantry section with its armament will constitute an objective. Such objectives as tanks, APCs, ATGMs, guns, etc. are designated as separate targets. A motorised infantry platoon includes three sections, i. e. three objectives, plus APCs, ATGMs and 12.7 mm machine guns — another six objectives. Thus, 27 targets may be divided into 9 objectives. The number of targets for other areas is calculated in a similar manner. Objectives are numbered from right to left, from the forward edge to the depth.

Ammunition is supplied for each type of weapon separately. To determine the necessary amount of ammunition, a special table is drawn up, containing the names and numbers of targets, the number of targets in each objective, type of weapon, firing position, average firing range, amount of ammunition for firing at single or all targets of a given objective. On the basis of these data the total amount of ammunition for the entire field firing is determined.

The quantity of ammunition is determined on the basis of tabulated consumption rates. For instance, to destroy a machine-gun objective designated as a single target, use is made of a light machine gun fired from a kneeling position, the average range being 250 m. According to the table, seven cartridges are required to destroy the given objective.

Consumption of ammunition for artillery and mortars is determined on the basis of the Terrestrial Artillery Gunnery Course.

The procedure for target showing is indicated depending on the enemy's tactics and commanders' decisions. Proceeding from this, the exercise director determines the time for which targets should appear, the number of appearances and the intervals between them. Targets are usually shown for 1.5-2 times as long as the time allotted for training exercises. This is because firing is carried out by subunits, and additional time is therefore required for detecting and assessing targets, assigning missions, designating targets, and concentrating fire and shifting it from one objective to another.

The targets are shown several times and long enough to enable the men to detect and attack them, and for commanders to assign missions to their subordinates. During the attack unit targets are shown uninterruptedly until the infantry reach the cease fire line (up to 200 m). Then the unit targets are taken away and displayed again when the attackers have approached the hand grenade throwing line.

The conducting of tactical exercise with field firing had the following specific features. When subunits approach the firing line, they are stopped and given ammunition. Then the all-clear signal is given. Simultaneously the subunit commander specifies the mission and reports his decision. After the umpires and the trainees have reported their readiness for firing, the exercise director gives the command to advance to the firing line. When the subunits have reached this line, signals are given for the personnel to load their weapons and start firing.

To achieve good results in working up training questions, and to make the simulation of combat operations as instructive as possible, the trainees must not be informed in advance of the location and time of target appearance. As showing of targets is effected on the basis of commanders' decisions and subunits' actions, relevant alterations should be made during the exercise in the preliminarily planned sequence of target showing.

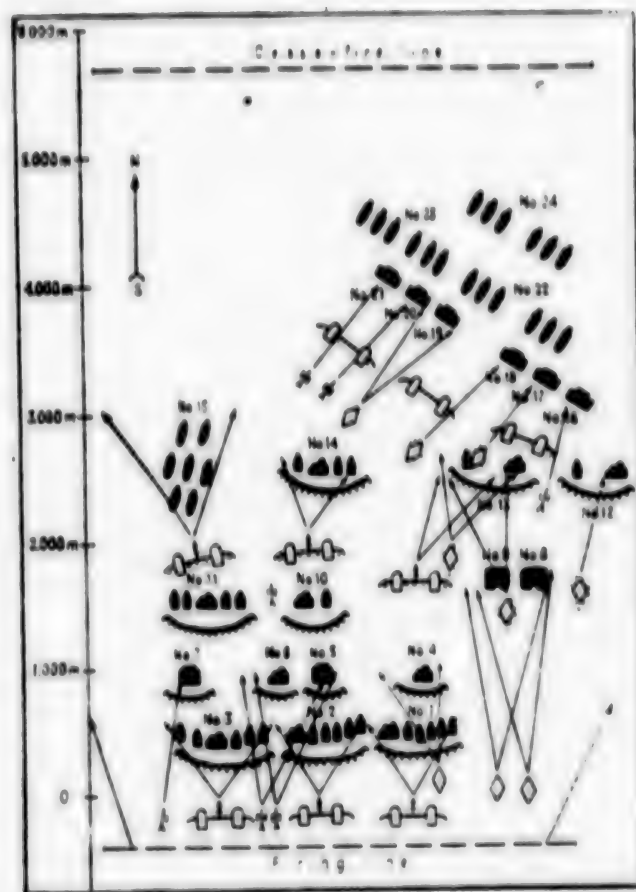
When firing, care must be taken to hit the most important targets first.

During the exercise the exercise director sees to it that firing is conducted on officers' and sergeants' commands with due account for the assigned missions, the number of targets detected and fire capabilities of friendly fire weapons. Besides, he ensures, personally or through the staff or umpires, that the trainees do not fire from shorter

distances and unauthorized positions, and that the safety measures are strictly observed. Should the established rule be violated, the cease-fire signal is immediately given. The fire umpires must stop the firing without delay and report the situation to the exercise director.

Field firing ends when subunits reach the cease-fire line. They stop, unload their weapons and hand over the unused ammunition to the ammunition supply depot.

The assistant of the exercise director for the target situation organizes a checkup of the results of the firing and reports them to the exercise director. Then the terrain is cleared of unexploded shells, grenades and simulators.



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GROUND FORCES

ROLE OF ADVANCED DETACHMENTS

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 36-38

[Article, under the heading "Combat Training", by Col V. Korotkov: "Advanced Detachments"]

[Text]

AN OFFENSIVE in marshy and wooded country involves definite difficulties. Numerous stands of timber, a dense network of marshes, lakes and rivers with low, boggy banks extremely hamper and sometimes even preclude the use of tanks, APCs, infantry fighting vehicles, and limit the possibility for effective employment of the available weapons.

Difficult ground can reduce the speed of the offensive or lead to an uneven advance of subunits which may result in a threat of unexpected flank blows by the enemy.

The probable directions of the offensive can be covered by separate company and platoon strong points while the banks of small rivers can be defended even by smaller subunits. The main effort is concentrated on holding roads and hills adjoining them, inhabited localities, log paths through marshes and other important objectives. Slashings are organised and mine obstacles installed between the strong points.

In such conditions the role of advanced detachments considerably increases. Their mission consists in advancing rapidly, capturing an important line or objective in the depth of the enemy defences, holding it till the arrival of the main forces and thus ensuring high speed of the offensive.

Such was the case during the Great Patriotic War. Combat actions of the 27th Motorised Infantry Regiment in the Vitebsk-Orsha offensive operation in June 1944 developed on a terrain with a big timber stands and numerous marshes.

The hitlerites organised their defences so that their strong points were located on dominating hills and covered the most advantageous directions of advance.

On June 24, the regimental commander was assigned the mission to capture an important objective in the depth of the enemy defences. Having estimated the situation he decided after the breakthrough of the enemy FEBA to send an advanced detachment comprising a motorised infantry battalion with the mission to destroy the enemy in the inhabited locality of Stoiki and then to reach the appointed line and hold it till the arrival of the regiment's main forces.

The Mts Inf Bn reinforced with an artillery battalion and two sections of combat engineers bypassed the strong point along a marsh which the nazis considered impassable, defeated by a surprise blow the garrison in the inhabited locality of Stoiki and by the end of the day captured the designated line. The battalion then held it until the arrival of the regiment's main forces who, exploiting the success of the advanced detachment, were able to advance at high speed.

A peculiarity of this advanced detachment's actions was that to carry out the assigned mission it had to destroy the enemy in Stoiki because the marshy terrain did not allow its bypassing to reach the designated line.

The experience of the war and tactical exercises provides quite a few examples when wide use of advanced detachments and their skilful and resolute actions made it possible to carry out an

offensive at high speed in spite of the fact that the enemy had the advantage of the marshy and wooded country for organising a stable defence. In such cases advanced detachments were reinforced with stronger artillery forces and engineer subunits than usual.

Because of the difficult terrain the use of tanks is usually limited. As a rule, they operate on the tank accessible ground, along roads and on sectors not covered with marshes and woods, that is, where their combat capabilities can be used with maximum effect.

Marshy and wooded country also hampers the maintenance of tank subunits. Additional special equipment (tractors, etc.) is needed. The best effect is achieved when tanks are attached to the motorised infantry subunits for their direct support.

During the training of an advanced detachment serious attention is paid to the men's skill, to their equipment, the maintenance of materiel, its provision with planking and perch decking, organic or improvised means of higher cross-country ability. Besides, a movement support detachment

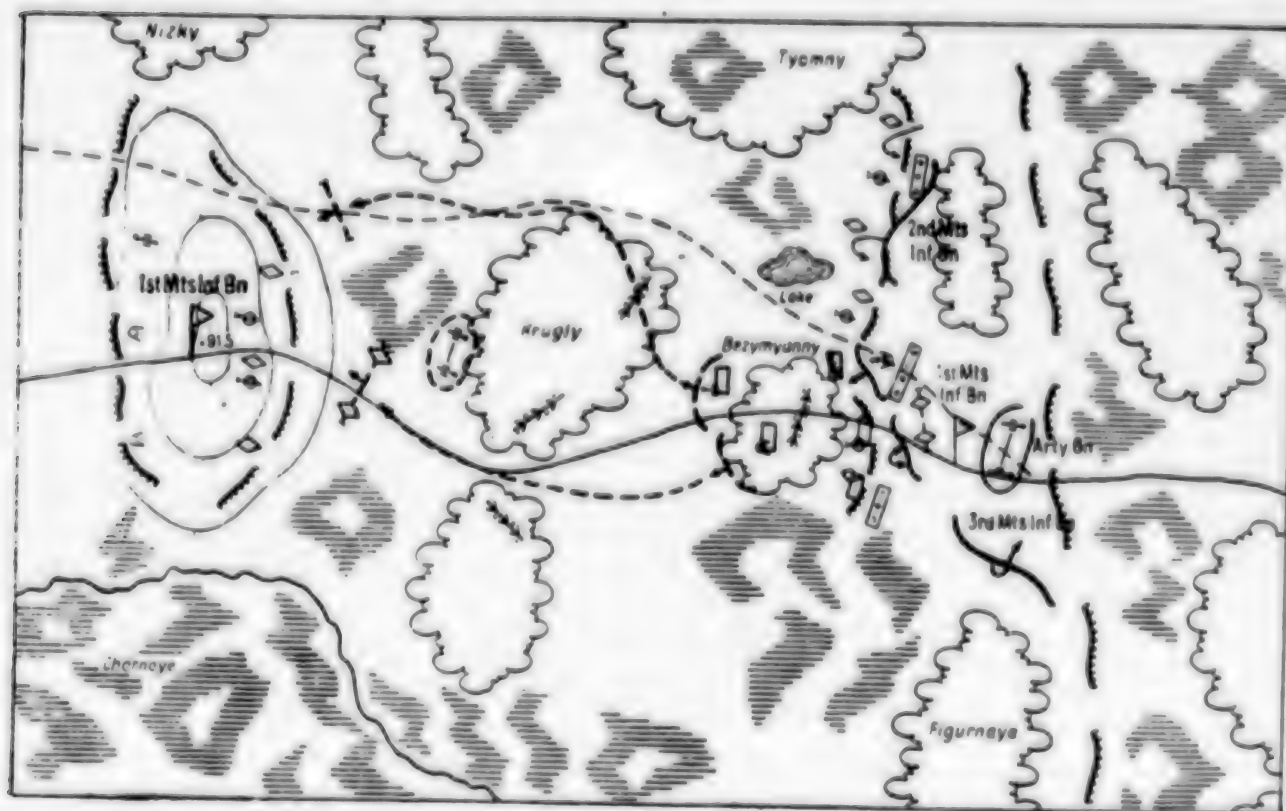
and an obstacle clearing detachment are formed for quick negotiation of the various obstacles which are frequently met with in marshy and wooded country.

It is difficult to bring up materiel and supplies because the number of roads is limited and large areas are swampy. Therefore the advanced detachment is supplied with sufficient stocks of ammunition, fuel and lubricants in advance.

Successful fulfilment of the assigned mission depends to a considerable extent on the training of the men, on the combat equipment, and also on consideration of the peculiarities of the terrain and the character of enemy actions.

As an example let us examine the actions of a reinforced Mts Inf Bn in the advanced detachment at a tactical exercise. The situation was as follows. A Mts Inf Reg having broken through the "enemy" defences reached the line: Tyomny Wood-Figurnaya Forest (see Sketch).

The "enemy," trying to prevent any further advance of the regiment, concentrated his main effort on defending the road and Hill 91.5 thus holding up the subunits' manoeuvre and slowing down the advance.



The regimental commander therefore decided to send the 1st Mts Inf Bn as an advanced detachment with the mission to complete the defeat of the "enemy" in Bezmyanny Wood and then to advance rapidly to Hill 91.5 and capture the strong point on it. The battalion was then to capture the line: corner of Nizky Wood-Chornoye Marsh and hold it till the arrival of the main forces of the regiment.

An artillery battalion, a tank company and a sapper platoon were attached to the battalion.

Estimating the situation the advanced detachment commander concluded that the "enemy," having concentrated his main effort on defending the road and the strong point from the front, was at the same time paying great attention to his flanks, fearing a turning movement. The presence of a number of mine fields on the flanks which, together with the marshy sectors considerably complicated the manoeuvre, was a proof to this.

The battalion CO decided to make use of similarly constructed defences. His intention came to the following. One company was to carry out a manoeuvre, to approach the "enemy" flank and by vigorous actions make the "enemy" believe that the main blow was to be delivered there. At that time the remaining subunits were to attack the strong point from the front, capture it and then advance towards Hill 91.5, capture the line: angle of Nizky Wood-Chornoye Marsh and hold it until the arrival of the main forces of the regiment.

The advanced detachment commander's intention and decision followed from the situation that had taken shape and were based on the desire to mislead the "enemy" by using an unexpected tactical method. In an attack or a meeting engagement the enemy is usually pinned down by some of the forces from the front, and the rest strike at the flank or rear. This method is not a new one and is effective only under certain conditions. It is no secret that this method was well

known also to the subunit commanders defending Bezmyanny Wood. Therefore they organised the strong points in such a way as to be able to beat off successfully both front and flank attacks.

In such cases the commander of the advancing subunit can, for example by vigorous actions on the flank, mislead the "enemy" and then by striking with the main forces from the front defeat him. All depends on the concrete situation, on the commander's initiative, his ability to take an original decision and to ensure its fulfilment in the shortest time.

Such were the considerations which prompted the advanced detachment commander's decision. Anticipating events, let us note that such a plan proved its worth. The flank manoeuvre did not remain unnoticed. The company supported by an artillery battalion led the "enemy" by its vigorous actions to believe that the main blow was to be delivered there. The "enemy" immediately transferred part of his forces there from the sectors which were not attacked.

The advancing subunits immediately took advantage of this. They struck a powerful surprise blow from the front, cut the defenders' battle formation in two and thus provided advantageous conditions for their complete destruction. An important role was played by the attached tank company. The battalion CO deliberately positioned it in the centre of the battle formation. The tanks advanced along the road, i.e. on ground where their combat capabilities could be used to the full.

The actions of the advanced detachment were notable for their speed, suddenness and resoluteness. It rapidly approached Hill 91.5 and captured it by attack on the move, then occupied the designated line and held it until the arrival of the regiment's main forces. Thus, a reinforced Mts Inf Bn ensured the regiment's rapid advance in marshy and wooded country.

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GROUND FORCES

ARMORED PERSONNEL CARRIER DESCRIBED

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 43-44

[Article, under the heading "Weapons and Equipment", by Col Eng D. Ryazantsev: "Armoured Personnel Carriers"]

[Text]

An armoured personnel carrier (APC) is an armoured tracked or wheeled fighting vehicle with high cross-country capacity (usually amphibious) intended chiefly for carrying personnel of motorised infantry subunits to the battlefield and providing fire support for them. Motorised infantrymen can fire both the APC's organic armament and small arms on the move. Armoured personnel carriers are also used for reconnaissance, troop security on the march and patrolling. For night operations they are equipped with night vision devices. When provided with special attachments, APCs are used for towing guns (mortars), evacuating the wounded, and carrying ammunition and other cargoes.

The BTR-50PK and BTR-50P armoured personnel carriers currently in service in the Soviet Army, are tracked amphibious vehicles, capable of carrying a fully equipped party of twenty men or up to two tons of cargo.

The BTR-50P differs from the BTR-50PK in not having an armoured roof over the troop compartment; on the other hand, it is provided with an arrangement for loading weapons and equipment. This APC is capable of carrying (both on land and when afloat) a gun, a recoilless gun, a mortar with crew and ammunition or an UAZ-469 automobile, and a raiding party of seven.

Both carriers feature high cross-country capacity and are highly manoeuvrable on land and in water alike. With the vehicle mass of 14.2 tons (including the crew, the raiding party or cargo), its specific ground pressure does not exceed

0.5 kgf. The four-stroke 240 hp engine with a specific capacity of 16.7 hp allows the APC to develop a speed of nearly 45 km/h on land and 10.2 km/h when afloat. The well considered dimensions (7,070×3,140×2,030 mm) ensure the vehicle's stability; it can negotiate upgrades up to 38°, trenches up to 2.8 m wide and vertical walls up to 1.1 m high. The vehicle can enter water at an angle of 30° and emerge onto a 25° steep bank, and withstand up to 12° roll.

The armoured personnel carrier consists of an armoured hull, a power plant, a transmission, a running gear, water-jet propellers, electrical equipment and communication facilities.

The APC is divided into three compartments: the driving, troop and engine compartments.

The armoured hull is intended to accommodate and protect units, mechanisms, the crew and the raiding party, and various cargoes. The durable welded structure made of welded plates reinforced with numerous longitudinal and transverse ribs ensures a high degree of buoyancy.

The driving compartment is located in the vehicle's front. It accommodates all control, measuring, navigational and vision instruments and devices, a radio station, an automatic fire-fighting system and other special instruments. Also located here are the driver's and the APC and raiding party commanders' seats.

The troop compartment occupying the middle of the APC accommodates the raiding party's seats, the machine gun securing brackets, the machine gun, fire-fighting facilities, life jackets, spare

parts, tools and accessories. The armoured roof is provided with manholes through which the motorised infantrymen mount and dismount.

The engine compartment is located in the rear of the vehicle and is partitioned from the troop compartment by a steel bulkhead. The engine compartment contains units and mechanisms ensuring the vehicle's motion, i.e. engine, transmission units, water-jet propellers, water shutoff mechanisms, fuel and oil tanks, water drain pumps, and smoke-generating equipment.

The BTR-50 is armed with a 7.62 mm SGMB machine gun mounted in the troop compartment. Loaded belts are stowed in magazine cases on the front armour plate to the left of the driver's seat. Cartridges for the flare pistol and hand grenades F-1 are also carried.

The BTR-50PK carries vision and orientation devices. For daylight observation, the commander has three prismatic TNP vision devices, the driver has four such devices, and the raiding party commander has an MK-4 vision device.

During night operations the driver and the raiding party commander observe the terrain with the aid of night vision devices. To steer the APC on a predetermined course in fog or bad visibility, a directional gyro is provided.

The power plant comprises a four-stroke liquid-cooled engine and systems ensuring its operation.

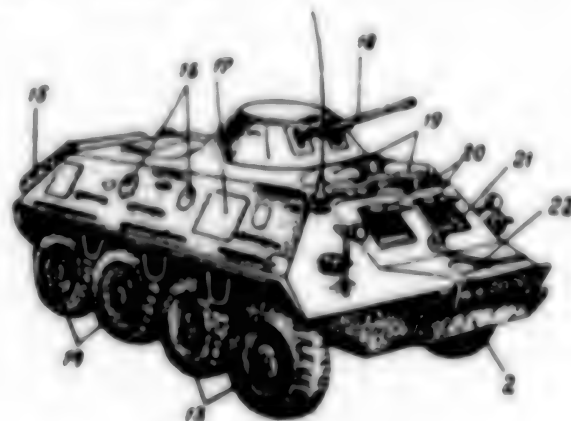
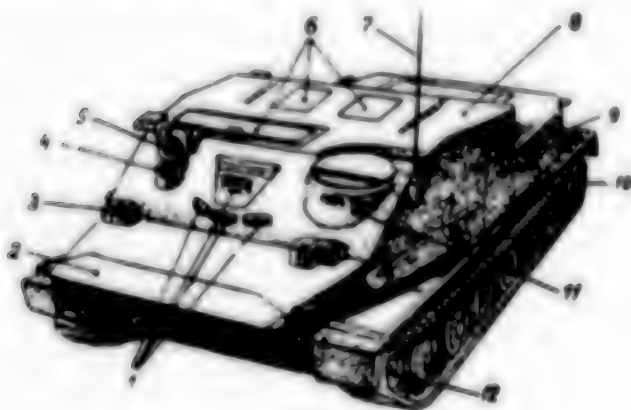
The mechanical transmission is located in the vehicle's rear. The powerful engine ensures a high cross-country capacity on land, while the reliable torsional suspension comprising shock absorbers cushions shocks and jolts on rough terrain.

To negotiate water barriers, the APC carries two hydraulic water-jet propellers located in the engine compartment along the vehicle's side.

With the water-jet propeller engaged, rotation from the inner reduction gear drive shaft is imparted to the water pump impeller. The water taken in by the pumps runs through the pump guide vanes and the water-flow system and, with the rear branch pipes open, is expelled overboard at high speed, thereby producing a thrust which propels the vehicle forward. With the rear branch pipes closed, the water is bypassed through the reverse motion branch pipes to be discharged at a small angle relative to the vehicle's longitudinal axis in the direction of its front, thus causing the APC to reverse. When one of the rear branch pipes is shut off by the gate, the resultant opposite reactive forces make the vehicle turn.

The APC carries a radio station and an intercom system for external and internal communication respectively.

BTR-50PK tracked APC; BTR-60PB wheeled APC. 1 — vision devices; 2 — splash panel; 3 — headlight; 4 — raiding party commander's vision device; 5 — searchlight; 6 — upper hatches; 7 — aerial; 8 — engine compartment hatch cover; 9 — side of raiding party compartment; 10 — road wheels; 11 — commander's cupola; 12 — idler wheels; 13 — steerable wheels; 14 — non-steerable wheels; 15 — silencer; 16 — raiding party small arms firing port; 17 — emergency exit hatch cover; 18 — machine guns; 19 — commander's and driver's manhole covers; 20 — commander's and driver's sight hole covers; 21 — hook for towing vehicle afloat; 22 — winch hatch



Armoured personnel carriers of the BTR-60 type differ basically from those described above both in appearance and design.

The BTR-60PB is a wheeled amphibious high-speed vehicle (up to 80 km/h on land and 10 km/h when afloat) armed with a turret machine gun twin mount comprising a 14.5 mm large calibre KPVT and a 7.62 mm PKT machine guns.

The vehicle's combat mass is 10.3 tons, its length 7,220 mm, width 2,825 mm, height of hull without turret 2,055 mm and with it 2,310 mm.

The BTR-60PB features high manoeuvrability, cross-country capacity and smooth running, it can negotiate trenches, communication trenches and water barriers. It can also cross ravines up to 2 m wide, climb upgrades up to 30° and move with a 25° roll.

These high running characteristics have been attained owing to a number of original design solutions. The BTR-60PB has four axles, all of them driving. All components of the transmission are enclosed in the hull. The torque from the axles is transmitted to the wheels through reduction gears, which allows the clearance to be increased to nearly half a metre. Owing to this the APC easily runs on uneven ground, leaving free stumps, hillocks and boulders between its wheels.

The steering gear too has certain peculiarities. Rotating the steering wheel makes the first and second axle wheels turn. With the vehicle afloat,

these wheels serve as additional rudders. The central tyre inflation system allows tyre pressure to be reduced to 0.5 kgf/cm², which facilitates movement on marshes and sand.

The two 90 hp engines installed in the engine compartment propel the vehicle on land. Each of the engines has its own gearbox and clutch, which makes it possible for the APC to run on one engine if the other breaks down.

When afloat, the vehicle is propelled by means of the water-jet propeller located in the rear of the hull. The water-jet propeller is powered by both engines through the gearboxes, power takeoff units, universal-joint shafts and the water-jet propeller reduction gear.

The propeller gates are controlled through the hydraulic drive actuated by the driver by means of a hydraulic cock.

When afloat, the vehicle is steered by turning simultaneously the wheels of both front axles and two rudders located in the rear duct of the water-jet propeller.

The APC is fitted with day and night vision devices and a radio station for external communication. The high reliability of the BTR-50PK and BTR-60PB makes it possible to use them in any climate.

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GROUND FORCES

COMMANDER, STAFF AND TROOP CONTROL

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 17-19

[Article, under the heading "Combat Training", by Col P. Simchenkov: "The Commander and the Staff"]

[Text]

TROOP CONTROL is a dynamic and probably the most complicated aspect in the military field. Reliability and stability of troop control have become one of the most important conditions for achieving success in battle. Without reliance on the staff, even the most competent, resolute and talented commander will fail to solve questions of combat readiness properly, to organise combat training correctly and purposefully, to sum up and implement advanced experience, and ensure the strict order prescribed by the regulations.

The staff is the main control body putting the commander's decisions into effect. All its activity is aimed at constantly supplying the commander with collected in good time and thoroughly selected, skilfully summed up and competently assessed information.

The tasks facing the staff are variegated, the main one being to maintain subunits in high combat readiness. The staff draws up and specifies the necessary documents, thoroughly plans the personnel's actions on the alarm signal, seeks to reduce the time for combat equipment to leave

the parks, etc. During exercises or in combat conditions one of the main duties of the staff is to prepare data for decision-making, to process the commander's orders, instructions and other documents quickly and competently, to bring them to the subordinates' notice in time, to participate actively in organising cooperation, to render the necessary assistance to subunits in the strict execution of orders, to be tenacious in implementing measures aimed at all-round support of combat activities and to maintain firm control.

Every commander who wants to find a firm and reliable support in his staff must constantly see that this control body is composed of capable and well trained officers, provided with automated troop control facilities, and displays perfect team-work, thereby contributing to uninterrupted troop control in any situation.

Of course, the commander and the chief of staff must develop a common style of work based on a combination of principledness, efficiency, mutual understanding and trust. If the chief of staff understands his commander perfectly and

the latter is aware of his assistant's capabilities and potentialities, and if business-like relations have been established between them, they will undoubtedly cooperate in any situation.

The activities of the commander and the chief of staff of the 176th Infantry Regiment, 45th Infantry Division, in the fighting on the Narev beach-head in 1945 is an example of such cooperation. The unit was assigned the mission to break through strongly fortified Nazi defences, force the Pelta River and marshy flood-lands and capture several inhabited localities, advancing on the direction of the division's main blow. Relying on the staff, the commander organised battle efficiently. All his actions were distinguished by high proficiency, combat maturity, confidence and resolution. All the work to organise battle went smoothly and with precision.

Having specified the assigned mission, the regimental CO gave orders to the chief of staff to organise reconnaissance and collect the information required to make a decision. In assessing the situation he and the chief of staff determined the sequence of actions to destroy the enemy, direction of the main effort, battle formation, subunits' combat missions, distribution of reinforcing means, time of bringing up ammunition, fuels, lubricants and rations. Simultaneously, the staff officers drew up a reconnaissance plan and made the necessary calculations. After the reconnaissance, an operations order was issued and cooperation organised.

All measures were based on the regimental CO's decisions and instructions and supported by organisational work of the staff, who prepared the necessary documents in good time and informed the subordinates of the forthcoming missions, worked out thoroughly the measures to be taken to organise cooperation and combat security, commandant's service, communication and secret troop control, and supervised execution of these measures.

The staff did painstaking work to reveal enemy installations, to organise their destruction by fire weapons and to work out different variants of turning movement to capture inhabited localities and dominating heights.

During the advance, the staff organised uninterrupted collection of information, its processing, assessment of the situation, quickly and regularly informed the subordinates on new missions, and the neighbours and the divisional staff on every change in the situation. Flexibility and operativeness in the staff's work were particularly manifest in repelling a strong enemy counterattack. The reconnaissance detected its preparation in

time, and the commander skillfully organised tank, SPG and artillery fire. Efficiency and team-work in the commander's and staff's activities created favourable conditions for successful execution of the assigned mission.

The basis of troop control in modern battle is in the first place high training standards of the commander and staff officers, their tactical skills and organising abilities, knowledge of the personnel's capabilities and the potentialities of weapons and combat equipment.

The abundant provision of subunits with complicated military hardware and the increased dynamism of combat operations have extended and complicated the staff's daily duties and posed a number of new and more rigid requirements for its work. Success of staff officers' work is inconceivable without a high professional training level, the ability to solve assigned missions imaginatively, flexible thinking, operativeness and tenacity in implementing the commander's concept. It is very important for them to know the nature of modern battle and to be capable of drawing up combat documents competently and quickly, deeply analysing the quantitative and qualitative correlation of manpower and equipment and of reporting concisely to the commander substantiated decisions, suggestions and calculations.

Much attention in staff officers' training is given to command and staff exercises on an unfamiliar terrain and in a complicated and dynamic situation. The entire staff with support and servicing subunits take part in the exercises. These conditions enable all work to be done in a strictly limited time, all questions of organisation and combat security to be worked up in full, and the necessary documents to be prepared. For exercises to provide real training for staff personnel to improve troop control methods, commanders attach great importance to working up questions of troop control on the battlefield. The trainees can forecast the likely development of combat operations, analyse different variants of decisions and get a deeper knowledge of the enemy's tactical methods. At such exercises the staff fully deploys command posts and establishes communication at reasonable distances with due consideration for camouflage measures and the time spent.

Of great use for perfecting staff officers' professional skills and improving their training standard are staff drills on the terrain with the use of communication facilities. During such training, the officers develop skill in formulating a decision quickly, drawing up documents and performing various calculations. As a result of regular and skillfully conducted drills and command and staff

exercises, every staff officer acquires reliable knowledge and skills for performing his duties, firmly assimilates the content of orders, instructions and reports, works up questions of cooperation, combat security and reconnaissance. Besides, he masters the methods and techniques of operative data collection and processing and of bringing combat missions to the subordinates' notice in good time.

The highest form of training the staff as a control body consists in tactical and special tactical exercises, particularly with field firing. In the complicated conditions created at such exercises the commanders and staff officers settle all questions concerning organisation of battle, effect uninterrupted control of practical actions carried out by units of different fighting arms. Such exercises combine the professional training of staffs at subunits and provide an opportunity to check the correctness of calculations and the suitability of decisions taken.

But no matter how well and regularly officer training is carried out, an officer will fail to keep abreast of present-day requirements unless he works on his own to improve his knowledge. Independent work is the basis for developing organisational skills, efficiency, self-discipline, for improving one's ability to work with military periodicals, to grasp everything new and resolutely discard everything obsolete, and to extend one's tactical outlook. Therefore, at each lesson commanders try to get staff officers to make a profound and imaginative study of the manuals and regulations, and check their knowledge regularly.

A purposeful and carefully thought out plan is an indispensable condition for staff officers' successful training. It helps to distribute the time so as to concentrate attention and forces on key problems on which the staff's high combat readiness depends. Many officers draw up individual weekly and monthly plans in which they outline

service duties to be fulfilled and make a list of subjects to be studied independently. By training their subordinates to be organised and to adhere to a plan, the commander and the chief of staff develop in the officers discipline, operativeness and a high sense of responsibility for the work entrusted to them.

Of no minor significance in the commander's and chief of staff's organisational work is supervising the execution of individual plans. It is most important for this supervision to be systematic and objective, and to contribute to timely correction of shortcomings revealed. To this end, commanders and chiefs of staffs make plans for supervising their subordinates' work, and strictly adhere to them. Supervising and checking the execution of assigned tasks is not only a means for revealing shortcomings; it is also a way of rendering qualified assistance to subordinates, of thoroughly studying, summing up and actively implementing advanced experience.

Practice shows that it is commanders with experience of staff work who rely most on their staff. And conversely, a chief of staff with command experience is more efficient at carrying out all tasks in subunits. Alternating command and staff work in the course of service and selection of the most talented and best trained officers for staff work are most effective ways for raising the quality of leadership of the forces.

Considering the growing role of staffs in troop control, commanders, political workers and Party organisations pay much attention to raising the level of staffs' organisational work, introducing progressive methods of troop control, and all new achievements of the technological revolution in this field. They see to it that the state of readiness of the troop control system is always ahead of the overall combat readiness of the formation, unit or ship, and is higher and more mobile than the latter.

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GROUND FORCES

MOTORIZED INFANTRY COMBAT TRAINING

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 20-21

[Article, under the heading "Combat Training", by Col I. Tikhankov: "Initiative in Battle"]

[Text]

During a march, a Mts Inf Coy under Senior Lieutenant V. Kovalyov, acting as part of an enveloping detachment, suddenly encountered the "enemy." A meeting engagement ensued. Its participants strove to forestall each other in winning initiative and capturing an advantageous tactical line. The forces being approximately equal, the sides were forced to assume the defensive by the end of the day.

During the lull the sides carried out reconnaissance, assessed the situation, getting ready to resume active operations on the advantageous lines. Soon Senior Lieutenant Kovalyov was informed that the "enemy" had brought up reserves and was on the point of passing over to the offensive. A very serious situation was taking shape.

Having assessed the situation, Senior Lieutenant Kovalyov concluded that a change in the correlation of forces in favour of the "enemy" made the advance by the company disadvantageous where it had been planned. It was necessary urgently to take another decision and assign new missions to subordinates, to organise cooperation with manpower and equipment. In short, much now depended on the initiative and resolution of the company commander.

He found the way out of the given situation by carrying out, first of all, an offensive demonstration. Then under "enemy" pressure he decided to start a deliberate withdrawal, limited his active operations to the main road, because the terrain right and left was marshy. During the withdrawal it was envisaged to conceal two platoons under cover on the right side of the road. The third platoon, continuing the withdrawal, was to cross the canal by the bridge and blow up the latter.

Thus, the "enemy" would be forced to come to a halt along the canal. At that moment two platoons hidden beforehand right to the road entered the battle. One of them was to strike a blow at the flank to deprive the "enemy"

of the possibility to manoeuvre, the other overlapped to cut off the road in the rear.

In making his decision the company commander thought out all the details thoroughly and from every aspect. A look at the map seemed to show that the terrain was the same on both sides of the road. However, Senior Lieutenant Kovalyov personally was convinced that the terrain on the right allowed two platoons to be sited while the left was totally impassable. He also took into consideration the fact that there had been heavy rain on the eve. He thoroughly thought over the subunit's withdrawal which would lull "enemy" vigilance and analysed the actions of the two platoons on the marshy terrain to the right of the road. In both cases the use of smoke grenades was envisaged to ensure secrecy of operations.

Subsequent events developed in full accordance with the company commander's intention. The peak of the battle was reached at the "blown up" bridge over the canal. Here the "enemy" was unexpectedly attacked in the flank and rear and sustained heavy losses. As a result the initiative passed entirely over to Kovalyov's company.

By the way, the company commander could have taken another decision, namely to hold the captured line until the arrival of the main forces. In this case too he could not be reproached because the company had met superior "enemy" forces. However his striving to fulfil the assigned mission in the best way was embodied in a daring decision which later on was skillfully carried out and allowed him to achieve success. This episode shows how quickly the situation may change as a result of using unexpected tactical methods, how much depends in this case on the commander's initiative and self-reliance, which constitute the most important aspect of the commander's skill.

The ability to outwit the enemy, to wrest initiative from him, to impose one's will on him, was an inherent condition of victory in battles of the Great Patriotic War. In

August 1944, for example, a Mts Int Bn under Captain B. Verzhnikov was assigned the mission: acting in an advanced detachment to approach the Vistula, force it and capture a bridgehead on the western bank. By evening the battalion had reached the assigned area. However it turned out that the previously elaborated plan of operations was unsuitable, for the Hitlerites managed to destroy the ferry which was to be used for crossing. The river here was nearly 700 m wide and the current was swift. Besides, the nazis had time to take up defensive positions and immediately opened heavy fire from the opposite bank.

The battalion CO realised that it would be very difficult to cross the water barrier in this place. But an order is an order and must be carried out at any cost. Therefore Captain Verzhnikov decided to cross the river at another, more convenient place.

There were possibilities for this. Two kilometres south there was a small island dividing the Vistula into two parts. It occurred to the battalion commander to get his battalion across to this island under the cover of night and then to force the left part of the water barrier. The reconnaissance sent to the island soon reported that there were no nazis there. The battalion then secretly began its movement to the new crossing.

By morning the advanced detachment was already concentrated on the island. Hardly had the first gleam of daylight appeared, when the first group began to cross to the far bank. It was followed by a second and then a third group. The Hitlerites discovered the brave men when they were already on the bank and had captured a small bridgehead. The nazis launched a counterattack to throw the Soviet fighting men back into the Vistula, but the battalion defended itself staunchly and held the captured bridgehead until the arrival of reinforcements.

This example shows that when there is a sudden change in the situation, the commander must not wait inactively for instructions from the superior commander. He must resolutely assume responsibility and act courageously and daringly, proceeding from the situation which has arisen and the previously assigned mission. Captain Verzhnikov, commander of the advanced detachment, acted exactly so.

As a result of the new weapons supplied to the forces, the change in the character of battle, which is marked more and more by unexpectedly sharp changes in the situation and rapidly aggravated crisis situations, the role and significance of the commander's initiative and self-dependence are also greater. The very character of modern battle is such that only commanders who are resourceful as regards tactical methods, capable of quickly and resolutely carrying out their intentions will gain victory in it. It is difficult to rely on a commander who has not sufficiently developed tactical thinking to take the most suitable decision in the extremely short time he disposes of if he finds himself in a critical situation.

All these exceedingly important qualities are developed by strenuous work and are based on high professional training. Both in everyday activity and in battle they are displayed most vividly by a commander who has a feeling for the new, and is trained to search daring decisions which will take the enemy by surprise.

A commander's skill to act with initiative and self-reliance is one of the most important factors which enable him to deprive the enemy of the choice of time, place and method of delivering a blow. Only a thoroughly proficient commander will be able to mislead the enemy as to his own plans, to frustrate his intentions, to force him to lose precious time and at the same time to impose own will on him, to react quickly to all changes in the situation. He requires a profound knowledge of the possibilities of the personnel, equipment and armament of manuals and other guidance documents which sum up the richest front experience and principles of modern military science.

It stands to reason that here we mean not a mechanical learning of all the principles and paragraphs of the manuals. The depth of a commander's understanding of the demands of manuals is judged by his ability to take competent decisions, his capacity to choose from a number of variants of giving battle the one which is most certain to bring success. The striving to find an original solution of the assigned mission, to exert active influence on the enemy in an offensive, defensive, or meeting engagement and in performing any manoeuvre on the terrain has been always highly valued in the activity of any commander. Battle is the highest test of an officer's professional skill.

The superior commander's decision is an indisputable law for those who have to put it into effect. In this connection one may ask: "How then can one display initiative?" The answer is simple: the decision of a higher authority is directed precisely at developing a commander's creative thought. Having been assigned concrete missions, he decides how to fulfil them. It is in the choice of ways and means of action on the battlefield that the commander's individuality manifests itself. In other words it is not the commander who, while trying to fulfil the assigned mission in the best possible way, does not achieve success, who deserves reproach, but the one, who, shirking responsibility, does not use all his forces, means and possibilities and acts without initiative.

Speaking of the factors predetermining success in battle, it is necessary to single out the commander, his moral and combat qualities, knowledge of military art, ability to foresee and direct the course of events into the necessary channel. Whatever situation may arise the fate of battle is in the hands of the commander, depends on his actions, his will, self-control and purposefulness.

A commander's personal example has a powerful influence on his subordinates. Scores and hundreds of fighting men whose actions depend entirely on the decision taken by the commander will remain for ever impressed by his behaviour in battle, his courage and resoluteness, his unbending will and firmness in achieving the set goal. The fighting men will trust such a commander even in the most critical situation.

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GROUND FORCES

FIELD MAINTENANCE OF ARMORED VEHICLES

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 25-26

[Article, under the heading "Weapons and Equipment", by Col Eng N. Shevchenko:
"Rehabilitation of Armoured Equipment in the Field"]

[Text]

Timely rehabilitation of equipment in the course of combat operations is an indispensable measure aimed at maintaining the forces' fighting efficiency.

The bulk of rehabilitation work in wartime is done by repair and recovery subunits. To cope successfully with the assigned missions, the personnel of these subunits must constantly train in conditions approximating real battle.

Special training exercises provide the most favourable conditions for the men to improve their practical skills. The concept of the exercise is worked out with due consideration for the missions facing the troops, the nature of the terrain, tactics of a potential enemy, etc. Combat training missions are thoroughly worked out for each category of servicemen. The plan of the exercise is plotted on the map. The tactical situation created at the exercise must affect the scope and content of the missions to be carried out by repair subunits, the repair time must be tied in with the troops' rate of advance so as to compel the repair subunit commander to take the necessary steps for protection, security and defence of combat equipment and personnel.

A special plan drawn up for the period preceding the special tactical exercise is most useful. It generally includes such items as the

personnel's study of their duties in rehabilitating material on the march and in different types of battle, training in preparation and use of mobile servicing equipment, repair and recovery facilities, consolidating skills and methods for protecting, safeguarding and recovering of installations, and also studying the repair process and conditions in the scope necessary to carry out forthcoming missions.

Prior to the exercise, servicing, repair and recovery facilities are checked for functioning and all faults detected are eliminated. If required, the vehicles are replenished with technical equipment, fuels, lubricants and special liquids, engineer equipment and materials, radiation monitoring facilities, and materials for special treatment. Tools, accessories, devices and technological equipment are checked for condition. Repair and other subunits detail men to form a technical service trail party, repair and recovery groups for carrying out forthcoming missions.

The exercise area is approved by the senior commander. Prior to the exercise, its director, jointly with assistants, reconnoitres the area. During the reconnaissance, routes of movement and of evacuation and also the repair subunit's deployment or damaged vehicles location areas are specified or de-

termined, and other questions settled.

Special attention should be given to establishing and preparing a practicable repair and recovery stock. To this end, combat training vehicles awaiting or already under repair and also faulty units, assemblies and instruments may well be used. A list of "troubles" recorded on special cards is drawn up in good time. It is advisable to simulate inconspicuous faults to be detected by repair teams during inspection. On the eve of the exercise the repair stock is taken to the exercise area. To keep the subunit fully occupied at a new deployment area, the same vehicles, instruments and mechanisms may be repaired several times, altering the nature of the fault or damage.

The personnel and materiel of logistical, medical, transportation, engineer and other subunits prepare for the exercise simultaneously with the repair subunit.

The assembly of the repair subunit and its advance to the exercise area are carried out as a tactical and marching exercise. The subunit may work up such items as the personnel's advance on the "assembly" signal, deployment of mobile maintenance, repair, recovery and storage facilities, and their preparation for use according to their purpose.

When the repair subunit arrives at the appointed deployment area, the commander conducts a reconnaissance of the latter. He must be able quickly to assess the protective and camouflage properties of the terrain, establish the presence of natural water sources, consider the possibility of a fire breaking out and determine steps to be taken to reduce its likely negative consequences. The reconnaissance is aimed at determining the location of the area for reception and inspection of damaged equipment, parking space for vehicles to be repaired or evacuated, places for repair of equipment, for repaired vehicles and for storage of armoured materiel, ammunition, fuels and lubricants, and special liquids.

After reconnaissance the commander assigns missions for deployment of mobile facilities for repair of disabled equipment. Simultaneously care is taken to see that all work is done in the scope and time established by the standards, with due consideration for camouflage requirements. For instance, welding at night is done in tents, under tarpaulins or under other blackout covers.

Specially detailed teams proceed to locate damaged or stuck vehicles, evacuate them to cover or repair grounds.

The scope of operations to be performed in rehabilitating damaged equipment depends primarily on its conditions. The sequence of operations is generally as follows.

To begin with, the condition of the vehicle is checked and the volume of repair work established. Then faulty parts, units and assemblies are removed, ammunition unloaded, and fuel, oil and special liquids drained, if need be. The removed parts, units and assemblies are repaired or replaced with serviceable ones.

Simultaneously, troubles are corrected on other instruments and devices, or the hull repaired, if necessary.

Serviceable parts and units reinstalled and centred, stationary tests (up to 30 minutes) of the whole vehicle or its individual mechanisms are carried out. In the event of positive test results, final assembly and adjustment are performed. The vehicle is then filled with fuel and lubricants, coolant and special liquids.

A 15-km test run is a reliable means for checking the quality of assembly of units, assemblies and systems, centring and fastening of assemblies, run-in of parts and units and of establishing dynamic properties. During the test run the equipment, systems and instruments

which have not been subjected to repair are also checked. If shortcomings likely to result in breakage or accidents are discovered, the tests are discontinued.

When all the defects detected have been eliminated and fastening properly done, the spares, tools and accessories removed during the reception are returned, and the vehicle is replenished with ammunition, fuel and lubricants, coolant and special liquids. If necessary, additional crew members are appointed.

The repair work carried out and the numbers of replaced units are indicated in the vehicle service log (certificate).

Repaired vehicles return to their respective subunits by groups or with repair subunits when the latter are transferred to another locality.

In the course of the exercise, all major operations are timed to allow the men to keep to the established time limits, to compare the results and accumulate data permitting repair, recovery and other personnel to be given specific assignments.

The exercise is followed by a critique during which the commander recalls the main stages of the exercise, the missions assigned at each of them, evaluates their execution and outlines the ways to overcome defects.

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GROUND FORCES

REVIEW OF BOOK ON ARMORED WARFARE

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 p 53

[Unattributed review of "Overcoming Antitank Defences" (Russian title, transliterated: "Preodoleniye protivotankovoy oborony") by A. Tonkikh]

[Text]

The problem of overcoming enemy antitank defences is becoming increasingly important in the general system of organising and conducting offensive operations. The book "Overcoming Antitank Defences" is devoted to this problem.

The author of the book shows that success of a modern offensive operation depends largely on the organisation and choice of the correct method for overcoming the enemy antitank defences.

According to the book the overcoming of enemy antitank defences presupposes: destruction of enemy antitank weapons, in the first place his ATGMs, antitank artillery and tanks; elimination of enemy antitank obstacles or their timely breaching and, what is particularly important, the most appropriate method or combination of methods of using tanks and other armoured vehicles for this purpose.

The author deals at length with

the methods of organising and conducting reconnaissance, securing information and bringing the received data to the knowledge of subordinates. He analyses the capabilities of field artillery and aviation.

ATGMs and antitank artillery, tank armament and infantry weapons and gives recommendations concerning their best use to overcome enemy antitank defences.

A considerable section of the book is devoted to methods for the attackers to break through enemy antitank defences.

The author widely uses experience accumulated during both the Great Patriotic War and postwar tactical exercises to illustrate his theoretical principles. The book is provided with a substantial number of photographs, drawings and sketches.

The book will be an interesting source of knowledge for military readers and help substantially to improve their professional skill.

* A. Tonkikh. "Overcoming Antitank Defences." Moscow, Military Publishing House, 1978, 140 pp. (in Russian).

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NAVAL FORCES

NAVAL ARTILLERY TRAINING

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 38-40

[Article by Capt 1st Rank P. Sokolnikov: "Artillery in Naval Action"]

[Text]

A modern surface ship is an intricate complex of weapons and equipment created on the basis of the latest achievements of science and technology.

Besides cannon artillery, which was for a long time the main attack weapon, rockets have been adopted for service in the Soviet Navy. Capable of hitting enemy surface targets and shore installations at great distances, they have added considerably to ships' fighting efficiency. However, the new conditions resulting from the possibility of nuclear weapons being used have in no way diminished the role of artillery. It still occupies a prominent place in the armament of surface ships. Moreover, it has been further developed along with other types of weapons.

The practicability of using naval artillery in combination with other weapons, and sometimes even independently, is explained by its high combat characteristics, e.g. firing range, rate and accuracy of fire, reliability, etc. These qualities assign the decisive part to naval antiaircraft artillery in fighting high-speed low-altitude targets.

In modern conditions ships with artillery armament dominating may be assigned the following missions: to cover friendly formations (fighting ships, landing parties, transports) against attack from enemy surface ships and aviation; to destroy ships and transports in repelling attacks of enemy landing parties and individual ships supporting the enemy's combat operations; to cover shore installations; to exploit the success of friendly forces after they have used other types of weapons.

A characteristic feature of a modern battle is fluidity. Speeds of ships, both artillery-armed and those likely to come under artillery fire, have grown considerably. The increased rate of fire and striking power of artillery systems have allowed to attain quicker the required degree of target destruction, thereby reducing the total time of firing on the enemy. Finally, the increased firing range and accuracy of fire have changed the tactics of conducting military operations, e.g. the time needed for manoeuvring to assume a firing position has been reduced, secrecy of actions enhanced, etc.

The fluidity and dynamism of battle complicate control and reduce the time available to the commander to assess the situation and take a decision. Execution of a manoeuvre and combat use of weapons require the commander to be able to make accurate tactical calculations and to work up practical skills on preliminarily planned variants of actions. However, the events during the search, taking up a position and striking a blow will generally not conform to the calculated and anticipated versions. Therefore, success will largely depend on the commander's tactical proficiency, experience, knowledge of the specifics of modern battle, and of friendly and enemy weapons' capabilities.

Manoeuvring a ship is one of the most important elements of a naval action, executed for the purpose of seizing and holding an advantageous firing position. The ship's position is determined by the distance to the enemy, and his bearing at the beginning of artillery bombardment.

The most advantageous combination of distance and bearing for artillery fire depends on the expected weather and other conditions, and on the tactical situation. Moreover, certain requirements must be satisfied. In choosing a fighting distance, for example, account is taken of the friendly and enemy ships' artillery maximum firing range, distribution of hits among the target ship's hull and deck, and the likelihood of other types of weapons being used by either side. Other factors to be considered are maximum reliable range at which the target and splashes from shell bursts can be observed by optical and radar facilities, the nature of combat operations conducted by other striking or support groups, position of the fighting ships relative to the shore, sun or moon, wind direction, and the state of the sea.

The ship's combat course on the firing position should ensure a high fire efficiency, i.e. all gun barrels trained on the target should be in the fire sector, guns and instruments on a choppy sea should be least threatened with flooding, and probability of being hit by enemy shells should be minimal.

Radar facilities enable the crew to detect the enemy at long range, thus allowing them to get ready for battle in good time, to take the most advantageous firing position or to avoid a blow

in time. It should be borne in mind, however, that the enemy has means of influencing the performance of the equipment. For instance, radio and radar jamming may considerably limit the use of artillery and missiles. Consequently, prior to battle the crew must take every step to reduce likely enemy counteraction, i.e. tune with precision transmitting and receiving equipment, make correct use of alternate frequencies, and have reliable knowledge of the territorial and time limitations for operating radio facilities. These measures are quite essential, for in a complicated situation there may always arise the need for switching over to standby methods in the use of weapons, e.g. firing with the use of optical facilities for target observation.

An indispensable condition of success in a naval battle is reliable air defence, because the enemy will not fail to use aviation and anti-shipping missiles on a mass scale. In these conditions AA artillery is assigned an important part in ships' air defence along with the ship's AA missile systems. The main thing required of it is to be constantly ready to repel an enemy air strike. Therefore, high combat readiness and reliability of air defence weapons, proficiency and teamwork of the crews are in the focus of the commanders' attention.

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NAVAL FORCES

NORTHERN FLEET COMMAND TRAINING

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 9-12

[Article by Vice Adm V. Kruglyakov, first deputy commander of the Order of the Red Banner Northern Fleet: "The Commanding Officer's Tactical Skills"]

[Text]

OCEAN CRUISES in remote regions of the World Ocean have become the principal form of combat activity for the seaman. They have far from easy tasks to solve, tasks calling for high combat skills and maximum effort.

To be an expert in one's profession is an objective necessity. A modern warship is a very intricate combination of various assemblies, systems, units and mechanisms for handling the ship and its armament. During a cruise or a naval action these are in a state of constant interaction. Naturally, the radical changes in military equipment and the tactics inseparably linked with it make stringent demands on the ship's commander — the central figure in the fleet.

A warship today is the concentration of immense fire power. The commander's responsibility for the ship's fulfilment of complicated tasks at sea has considerably grown. It is therefore evident that when the ship is far from constant bases the commander's ability to take independent decisions is a major result of his tactical training. The ship's commander is given all powers necessary for the ship's complement to carry out the complicated and responsible tasks facing them.

A naval action today is characterised by an unprecedented scope, fluidity, saturation with events, and, what is most important, great destructive power of weapons, and, hence by the CO's high responsibility for the decisions taken. The CO's ability to fight a battle (to prepare, take and implement decisions for combat operations in complicated situations) is determined above all by his tactical skill. Proceeding from the situation obtaining, the CO must choose the only correct and practicable method and means to achieve victory with minimum losses.

The experience of combat operations conducted by the Northern Fleet in the Great Patriotic War (1941-45) reveals the following characteristic feature: the most brilliant successes were scored by the commanders who displayed high tactical proficiency, skillfully combined daring and calculation, and were capable of taking and implementing decisions quite unexpected for the enemy. Along with this, the war showed that the CO's skill consists not only in the ability resolutely and competently to use this or that method of actions, but also in a constant and earnest creative search. Without these qualities a CO merely executes the ideas of others.

During the war ships' COs did a lot to make action against the enemy at sea more effective. In duels with a merciless and strong enemy new tactical ways and methods were found. Northern Fleet submariners, for example, were the first to switch over from single to salvo torpedo firing. The periscopeless attack too was born on the polar seas. It is there too that a successful torpedo attack was carried out simultaneously at two targets. Northern Fleet seamen pioneered the use of submarines by the method of the "overhanging screen." It is no exaggeration to say that during the war ships' COs made a great contribution to the development of naval tactics.

Sailors' tactical skills, maturity and experience were acquired in the heat of battle. Today their experience and glorious combat traditions form the basis of the personnel's combat training and political education. A vivid proof of their boundless devotion to the Motherland and deep understanding of their duty is the fact that over twenty seamen have been honoured with the title of Hero of the Soviet Union and awarded Orders and medals during the postwar years. They mastered new weapons and equipment and were the first to perform under-ice cruises to the North Pole and trans-ocean underwater passages. They studied and implemented the theory of a naval action, methods of rocket and torpedo attacks, and of combat use of antisubmarine weapons and equipment.

In our time of dynamic development of technology and tactics successful solution of a number of practical questions is inconceivable without constant improvement of tactical knowledge. The objective necessity for ships' commanders to participate in scientific research and in substantiation of new methods and means of using materiel and waging a sea battle urge them to become real researchers. This task can be coped with only by persons with higher military or engineering education. At the present time, when all ships' COs and the majority of leading naval specialists have such an education, they are beginning to play a new role in searching for new tactical methods and means and in bringing out all combat potentialities of weapons and equipment — the role of scientist COs. A candidate or even a doctor of science degree, as in the event of Vice-Admiral V. Mikhailovsky, Hero of the Soviet Union, becomes a summing up of experience of handling a ship and research activity in the post of ship's CO. The Fleet Command renders practical assistance to ships' COs in this field, primarily by teaching them to be earnest in their studies.

The Fleet Military Council takes constant care of COs' professional growth, including their tactical and methodical skills, their ability to instruct and educate the crew in keeping with modern re-

quirements, and pays special attention to avoid oversimplification and slackening of discipline and stereotypes in combat training. At the same time, the military council, commanders of formations, staffs, political bodies and Party organisations spare no pains to make the entire system of officer training a creative process and urge the officers to perfect their professional skills.

The example in this is set by flagship commanders who take a direct part in their subordinates' training and education. The example of senior COs is also important because the professional level of lessons they conduct at sea or at base predetermines not only the success of their subordinates in mastering a particular question or acquiring the necessary practical skills but also the methodology of working out views on the approach to the missions to be carried out.

Of great significance in COs' tactical training is a strict and purposeful system presupposing precise organisation and perfect methods, and ruling out all spontaneity and anarchy. One cannot expect a CO to display a creative approach and take original decisions in such kinds of combat training as, for example, missile firing, unless he has assimilated the theory and worked up organisational matters and their practical execution, for his attention will be focussed on avoiding mistakes. In such cases there can be no question of deep tactical thinking, courage, ease, ability to be master of the circumstances and unexpected situations.

To take a well grounded decision in battle, the CO must possess qualities enabling him to understand correctly the development tendency of combat operations and clearly see the consequences of the steps taken. These qualities are his experience, professional training level, initiative, creative approach, resolution, military cunning and courage. In modern battle success will attend commanders capable of finding ways to victory in any tactical situation. One of these is readiness and ability to take a justified risk.

On December 3, 1941, the K-3 Northern Fleet submarine under Lieutenant Commander K. Malofeyev was attacked by an enemy convoy and subsequently chased by three antisubmarine ships. As a result of the damage sustained, it lost its manoeuvrability in a strait. In this situation the CO had the courage to take a risk and decided to surface and break away from the enemy under cover of artillery fire. The CO's decision was based on surprise and confidence in the complement's high combat training standard and courage. His calculation brilliantly justified itself: one enemy ship was sunk, and the submarine was thus able to get away.

Good traditions in creating a system for training officers to become masters of tactics were ori-



ginated in the Northern Fleet by Vice-Admirals L. Matushkin and G. Nevolin. They were well acquainted with every ship's CO, knew his strong and weak points, they liked to work with officers individually on sea cruises, and paid much attention to COs' instruction, specifically in tactical matters.

It is most important for a senior CO to do his best to arouse in the commander a feeling for the new and a striving for creative search. Noteworthy in this respect is the CO's purposefulness in his work with officers and his ability to use every opportunity to help them to get used to their new duties, to make them feel confident on the conning bridge and learn to show initiative.

At fleet level everything is being done to

channel the COs' activity in the right direction. Improved training methods aimed at enhancing their tactical skills are being evolved, a strict procedure of the CO's training for going to sea has been established, and more rigid examinations for the right to independent ship control have been introduced.

An increasing role in COs' tactical training is assigned to technical training aids and tactical simulators. They are particularly important at the initial stage, when officers' short service record or insufficient combat training level cannot ensure safety of navigation and the ship's action at sea. In a number of cases simulator training is the only means of teaching tactics and handling weapons which, in principle, cannot be used for training

purposes, and also of teaching emergency actions.

Modern simulators allow objectively to analyse and keep record of any phase or element of the tactical mission being carried out, and enable the formation or ship commander to conduct simultaneous and dynamic observation of the objectives subordinate to him.

However, in spite of all the merits of tactical simulators, even the best of them cannot be compared to a tactical exercise at sea, which is the highest stage in improving the personnel's moral and combat qualities, and an effective test of COs' and staffs' tactical training standards.

Objective control of the results and knowledge of the ultimate purpose of the exercise — the quantitative result, showing to what extent the purpose has been achieved — is another important demand on tactical training at sea. The CO or exercise director must be fully aware of the results he wants his trainees to achieve. These may be the required number of hits in firing or the time and accuracy of a manoeuvre or solving a task in manoeuvring, search and tracking.

Tactics, being the basis of officer training, pre-determines the content of other kinds of combat training, e.g. technical, special, etc. Experience shows that the development of weapons and equipment, increase in range and duration of ocean cruises increase the commander's responsibility for accuracy of navigation.

Navigation today is regarded not only as the science of safe, accurate and most favourable sailing; it also includes manoeuvring for the purpose of using weapons. Its efficiency may be impaired or reduced to nil if the CO proves incapable of performing a resolute and precise tactical manoeuvre on the basis of calculations and pre-selected navigational data.

One of the ways for the commander to improve his tactical skills is thorough study and mastering of weapons and equipment and also practice in methods of using them. Efficient use of the ship in battle requires first of all that the CO is well conversant with the design of a surface ship or submarine, their handling, specifics of using weapons and equipment, damage control facilities, theory and practice of calculating the ship's stability and unsinkability.

Experience has proved that the CO's tactical skills are not divorced from the professional level

of the entire collective. The better the collective's team-work and training standard, the better the results will be. Team-work of the ship's combat crew is very indicative in this respect. Its training is not an easy job, for the CO can rely only on his own forces and abilities at sea. To raise the crew's standard, give it command of advanced experience in a concentrated form is a task to be solved by the whole collective. The role of socialist emulation in this content can hardly be overestimated.

For example, on the nuclear missile submarine "60 years of the Great October" (which initiated socialist emulation in 1978-79), the CO, his deputy for political affairs and all Communists succeeded in orienting the emulation first on enhancing the ship's combat readiness, improving the personnel's professional training level and the quality of fulfilling combat missions during cruises. Take, for instance, the organisation of emulation for the title of the best watch officer of the shift.

Initially, five to six best watch officers are determined in each combat shift on the basis of certain preliminary data. Subsequently, the selected specialists get ready for a practical competition. A special commission works out questions the answers to which call for knowledge not only of action station equipment, but also of whole systems and compartments. A competitive spirit reigns in the compartment, each sailor being eager to give the best performance. Questions suggested by old-timers are studied and discussed by the entire crew. As a result, not only the winners but the whole personnel demonstrate better combat skills.

In the course of emulation directed firstly at ensuring high combat readiness, ships' COs are urged to attain practical results, e.g. hitting the target with the first salvo, first launching or first shot; struggle for the title of best ship or advanced formation; detailed study of advanced experience born during ocean cruises.

Ocean cruises for the sailors of the Order of the Red Banner Northern Fleet have become a real school of combat maturity. Further growth of the scale and complexity of missions require the CO to be competent in many questions, first and foremost, in questions of tactics, which reflect his military maturity and his readiness competently and selflessly to defend the interests of the Motherland.

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Page: 1212

NAVAL FORCES

AVIATION ASW EXERCISE REVIEWED

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 13-16

[Article by Maj C. Baldenkov, military navigator 1st Class: "Tacking Over the Ocean"]

[Text]

Imperceptibly for the eye the plane leaves the runway and quickly gains height. The grey hills sink and suddenly look flat. The entrance into the clouds is felt by a slight shaking of the plane. The streams of rain streak down the windscreen of the cockpit. It becomes dark at once. The clouds are like flaky pastry: after coming through one layer, the plane is faced in a few seconds with another.

According to calculations the shore line must already be below. So it is! The navigator, Captain Viktor Savchuk observes its winding contour on the radar screen.

Without losing time, he corrects the compass reading by the screen reference points. The plane's bearings are entered on the map one after another. While he can get a radio bearing on the land, the navigator makes the most of it. The further out over the ocean, where the route of anti-submarine plane is tacking for, there will be fewer opportunities. That is why Savchuk so carefully rechecks the results of measurements and calculations. Later on they will provide the only basis for accurate navigation over the boundless ocean.

Flights over the ocean are very complicated. There are no typical radar markers along the greater part of the routes.

All this leaves its mark on the character of the flight training. On navigator Savchuk's map the necessary lines of the position are plotted with

great thought and accuracy. As a result, he can check on the plane's position quickly and accurately.

Incidentally, Captain Savchuk is not the only navigator on the flight. In the rear compartment of the cockpit the second navigator, Captain Vasily Vinichenko helps him to plot the position. His main concern is the handling of the equipment for seeking out and destroying submarines. But he doesn't miss any opportunity of training in air navigation.

The route makes a large curve. It is hard for the "enemy" to guess the intentions of the crew. Every stage involves calculation of new navigation elements, keeping to the given conditions of the flight. The farthest section is the area where the crew has to go on watch searching for the underwater enemy.

The usual hum of the engines has changed, the warning signal sounds: "Losing height." The swollen clouds pile up again along the hull of the air liner. The rolling is getting worse. The outboard sensors warn: "icing." The heaters began to work at full power, removing the crusts of ice from the glass and the front edge of the wing. The lower the plane flies, the more the icy breath of the Arctic Ocean is felt.

The crew work at sharply increased speed. The time comes when the pilot "flattens out," puts the

plane in horizontal flight to make one more thorough check to be definitely sure that all the special equipment and devices are working properly.

"Get ready to work with the scanning magnetometer!" orders the commander, Captain Konstantin Fedotov, continuing to lose height. With the help of this device the "combing" of the given area will now begin, the aim being not to let through any "enemy" submarine. The device is switched on and the signal lamps over the recorder unit light up at once. Like eyes, they are fixed unblinkingly on the navigator's face.

"Commander! After putting out a marker turn 180° to port!"

These words of Savchuk's convey that they have broken through the clouds. Outside the scene has changed. Gigantic billows, with shaggy grey crests race hunchbacked all over the ocean.

Submarine searching even in straightforward conditions is no easy affair: the "enemy" is hidden under the thickness of the ocean. All the more so now. Bad weather is a reliable ally of submariners and a great obstacle for airmen. A steep wave produces such a scale of sounds that even for highly sensitive radio sonobuoys it is difficult to distinguish the noise of the submarine screw. On the other hand, a rough ocean doesn't bother the magnetometer. But the operator must be skilled at working with it.

On Savchuk's command Vinichenko throws out the marker buoy. The place of the buoy is marked with a little circle on the big plan criss-crossed with the lines of tacks. Now it serves as a reference point in relation to which the plane will begin tacking in the appointed area.

The pilots fly the plane as though in obedience to the navigators eager to ensure them the best possible conditions for their job.

Captain Vinichenko is all attention now. He even has screened the upper porthole so that the light will not disturb him.

In front of him in semidarkness glow different coloured signal lamps, panels, dials. But he concentrates on the main thing — the slowly moving recorder tape.

The duel of the antisubmarine plane with the submarine often abounds in tense situations, in which the most trained, steadiest, best-steeled, most resolute and quickest wins.

Dozens of minutes go by in concentrated watching of the devices. The navigators are fatigued with the rolling, the endless flashing of shaggy-crested waves. Piloting in turns gives some kind of relief. But even after handing over the controls to the other pilot one has to ensure him by checking the readings.

Each navigator is permanently busy with his job. Savchuk checks that the lines of the tacks are strictly parallel, otherwise some area might remain "uncombed." And if the submarine happens to be just there? Vinichenko follows the recorder tape. If the signal of a target appeared, it would be a reward not only for him, but for the whole crew. There's one thing Vinichenko knows for sure: by no means must this moment be missed. The signal of the target, as we know, is the starting point from which the tracking begins; later, if the order comes, the underwater "enemy" will be struck by a blow he cannot parry. The second navigator stands motionless at the sighting window. Only now and then does he make a note with a pencil on a tape beside a suspicious, but nevertheless false signals.

"Commander, end of tack, turn to port!" Savchuk warns.

The horizon line overturns slantwise for a few seconds. Then the plane straightens out in its course again. And again with tiresome slowness the time of the search goes by. Tack. Another tack...

"That was the last. Now course 30° to starboard. Take up your echelon..."

The engine roars louder, carrying the plane higher, towards the sun. Its brilliant rays burst dazzling into the cabin, gently gliding over tired faces, stroking away the long hours of strained attention.

The airmen are sure they have done everything properly and worked conscientiously. And the submarine? It might have taken another route. But it won't be able to deceive the antisubmarine airmen's watchfulness.

...In the gaps between clouds the raging sea can already be seen. One can't help thinking that some time ago the wartime routes passed through here. Here the Guardsmen sent enemy transports to the bottom.

The memory of the heroes lives on. Their successors multiply their glorious fighting traditions.

MILITARY SCHOOLS AND ACADEMIES

BIOGRAPHICAL DATA ON CHEMICAL EXPERT KNUNYANTS

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 36-37

[Article by Col N. Yelshin: "Study, Work and Search..."]

[Text]

IN THE THIRTIES and forties of our century malaria was a real calamity for many countries. Just like the influenza epidemic of our times, severe bouts of this disease made thousands of people take to their beds. In the USSR measures against it were taken on a nation-wide scale. The disease was wiped out owing to the establishment of a wide network of centres to cure or prevent it, and of special anti-malaria institutions, and also to the use of a powerful medical preparation called akrikhin, invented by Ivan Knunyants.

After graduating from the department of petroleum technology of the Bauman Higher Technical School in Moscow in 1928 Ivan Knunyants worked in the laboratory of A. Ye. Chichibabin, a well-known organic chemist. The young scientist knew that the country needed, and needed very badly, a preparation of its own to replace quinine. Quinine was being imported at a fabulous price. True, ataurin had been invented in Germany, but its formula and method of production were kept a secret, and it was nearly as expensive as quinine. Ivan Knunyants decided to synthesise a quinine substitute. And when he tackled a job, he did it passionately, giving himself entirely up to it. He continued his research in this field after becoming an assistant professor of the Military Academy of Chemical Defence in 1932.

Chemistry is the science of great transformations of matter. For instance, if we take the formula of a molecule divided up into its atoms and add a few atoms or change their places we get a new substance. But the question is how many atoms and where to place them, how to change their places in order to get what we need.

"The molecule of the initial matter was before my eyes all the time," recalled Ivan Knunyants later. "And at last I found a way to group together the atoms in it. Early in the morning I came tearing to the laboratory. Twenty-four hours later the task was solved."

Everything seems quite simple: "I found a way." But behind it were many days and nights of meditation, doubts, thousands of experiments and hundreds of versions rejected. But the results compensated for all the trouble: mass production of akrikhin based on the method worked out by the young scientist helped thousands of people to get rid of this serious disease. And to this day one of the initial substances for the production of akrikhin — the "Knunyants lactone" — helps pharmacutists the world over to manufacture vitamin B₁.

Yes, chemistry is the science of the transformations of matter and therefore it gives man a definite power over nature. But if this power is placed in the hands of criminals, it may turn chemistry, a creative science, into a science of destruction. And then many scientists have to rack their brains, as did Ivan Knunyants, to find ways of neutralising its destructive effects.

In preparation for the Second World War, the ringleaders of the Third Reich mobilised the "IG-Farbenindustrie" for production of weapons of mass destruction of people. A group of Soviet scientists headed by Ivan Knunyants was charged with developing antidotes (neutralisers) against the war gases developed by the nazis. Experiments followed one after another. All through the night the light burned in the laboratory. In 1943 it was announced in the press that a State Prize had been awarded

to a group of scientists for developing a new medical preparation. This preparation — an antidote to prussic acid — was issued in ampoules to every serviceman. This was the scientific feat of Soviet chemists to save millions of lives. As we know, the Hitlerites did not dare use their poisonous substances in mass quantities. But if they had done the antidote of Knunyants and his colleagues would have helped many to escape death.

The search for new, untrodden paths is a characteristic trait of Ivan Knunyants, the scientist. Take, for instance, his invention of kapron.

The long-awaited Day of Victory in the Great Patriotic War (1941-45) was still far off when it was suggested to Ivan Knunyants to start work on new, cheap and durable materials, including nylon. He asked for some time to consider the proposal.

He was not thinking of the difficulties for himself, of the serious moral and psychological strain, though to combine scientific research with teaching was, of course, no easy matter. The front needed specialists and Ivan Knunyants approached the problem of their training with the same responsibility as his scientific research. At the same time he was thinking whether it was worth-while to produce nylon. And the conclusion he arrived at was:

— No, it's not worth-while. We'll synthesise the polymer of kaprolaktam.

There were arguments. The words of Wallace Hume Carothers, the well-known American researcher, were recalled: "The polymer of kaprolaktam must be just as good a material as nylon, but it does not polymerise." Ivan Knunyants parried: "You see, Carothers said 'just as good.' But polymerise it will!"

And it did. He managed to develop kapron in laboratory conditions. But Knunyants did not stop at that. At that time a Corresponding Member of the USSR Academy of Sciences, he also developed the technological process for the industrial production of the new material.

Everyone knows what kapron means. It means parachutes, clothing, machine parts and a lot more things. The scientist's research work was fittingly appraised: in 1950 the Soviet Government awarded Major-General Engineer Ivan Knunyants a USSR State Prize (for the third time) "for developing and introducing methods for production of a new artificial fibre."

The above-mentioned inventions alone are enough to bring fame to a number of scientists. But we have not yet mentioned his services in founding the world-famous Soviet school of fluorine organic chemistry.

"We, chemists, call many fluorine-carbides substances with a 'diamond heart' and the hide of a rhinoceros'," said Ivan Knunyants in one of his interviews and explained:

Academician I. L. Knunyants

"The 'diamond heart' is a chain of carbonaceous atoms in the molecules of these formations, tightly covered with the 'hide of a rhinoceros' — atoms of the fluorine. Because of this, even the most aggressive elements cannot destroy the main chain."

The taming of fluorine cost Knunyants and his assistants burns and even poisoning. Sometimes the reagents exploded. But the result was excellent: Soviet scientists opened the road to the creation of resistant thermostable coatings, thermostable organic glasses, frost-proof rubber, special membranes, powerful anaesthetic devices and so on.

Akrikhin and kapron, fluorine organic chemistry and... new active surface coatings. The latter are needed to withstand corrosion, wear and tear, oxidation, to improve the quality of goods made from metals and alloys and prolong their life-span. Not so long ago a group of scientists headed by Ivan Knunyants developed "khromin," a preparation for chroming automobile parts and other objects. It saves up to 35 per cent expensive chrome.

Extremely wide is the range of scientific work done by Ivan Knunyants. More than 200 inventions, many of which were applied in industry. 900 published works. At 33 years he was Doctor of Science, at 34 a professor, at 40 a Corresponding Member of the USSR Academy of Sciences, at 47 an Academician. He heads the laboratory of the Institute of the Formation of Organic Elements of the USSR Academy of Sciences, is editor-in-chief of "Journal of the Mendeleev All-Union Chemical Society" and editor of the "Chemistry" section of the Great Soviet Encyclopaedia.

Ivan Knunyants' services to science and his country are great. And they have been appraised highly: a Lenin and

three USSR State Prizes, the title of Hero of Socialist Labour, five Orders and many medals.

But besides scientific work, he is active in the pedagogical field. Of the 74 years of his life 48 were given to teaching at the Timoshenko Military Academy of Chemical Defence. Since 1938 Major-General Engineer Ivan Knunyants has headed a chair in the Academy. All his life he has been true to the rule: study, work and search.

Those who worked a long time with Ivan Knunyants remember this incident. The child of one of the instructors was seriously ill. Only a very scarce medicament of foreign make could save it. Knunyants phoned and went to dozens of Moscow institutes in his car and finally managed to get it. The child was saved.

This incident enables us to see from another angle everything he has done in science and to understand why he, a merited academician, still continues to work on medicines today. He created haksafosamid and lolenal — anti-cancer preparations which helped to prolong the lives of many people.

To understand a person it is not enough to know him today only. Everything in life has its source, and the count off for many things in life begins in childhood.

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PERCEPTIONS, VIEWS, COMMENTS

USSR AND INDIA RELATIONSHIP

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 pp 55-56

[Article, under the heading "International Affairs", by V. Yefremov: "A Factor of Peace and Stability"]

[Text]

THE EVENTS in the Middle East, as well as in South-west Asia, have been demonstrably showing that the supporters of US hegemonistic policies are doing everything in their power to create new bridgeheads here and bolster old ones, and to expand their network of military bases in the Indian Ocean and in Middle East countries. The US would like to place the region's countries under its hegemony so as to tap their natural resources unimpeded.

Aided by the Peking hegemonists, it is waging an undeclared war against democratic Afghanistan, which poses a threat not only to the Afghan revolution but also to the security of the southern borders of the USSR and the frontiers of Iran, India and other sovereign states.

These conditions are making unity between all anti-imperialist forces in Asia a vital necessity. Growing Soviet-Indian relations have become a factor of peace and stability in Asia. These relations have a long history and fine traditions; they are based on the national interests of both countries and their adherence to the cause of peace and national and social progress.

Since that memorable day of August 15, 1947, when Jawaharlal Nehru raised the flag of an independent India over Delhi's Red Fort, friendship between the Soviet and Indian peoples has been growing stronger with each coming year. It is built on the solid foundation of respect for the independence and sovereignty of both states, equality, non-interference in each other's internal affairs, and mutual advantage. "We were with you during the formation of the Indian state organisation," stated Leonid I. Brezhnev at a mass rally near Red Fort on November 26, 1973. "We were with you during India's toughest times. We were with you when various outside forces brought pressure to bear upon India while it was defending its vital interests."

It was precisely in one of India's most rigorous periods—the outbreak of the Indo-Pakistan conflict provoked by the imperialists and Peking hegemonists — that the historic Treaty of Peace, Friendship and Cooperation was signed (August 1971). This treaty was the natural result of political, economic and cultural cooperation which has been developing successfully between the two countries. It formalised the results that had been accomplished and mapped out guidelines for Soviet-Indian relations for the next two decades. The Treaty expresses the resolve of both states to pool efforts in providing security in Asia and all over the world. It contains a clause on mutual consultations for the purpose of thwarting an attack or eliminating the threat of attack and to take relevant measures for ensuring peace and security for both countries.

Reciprocal visits and business meetings between the officials of the two countries have become a fine tradition. Each such meeting makes it possible to map out guidelines for the continued development of bilateral relations, to deepen trust and mutual understanding, clarify each other's position and coordinate actions.

The Indian visit of Comrade Leonid I. Brezhnev in November 1973 is of particular importance in this regard. The Joint Soviet-Indian Declaration, long-term agreements on the further development of economic and trade cooperation, and other documents signed during the negotiations in Delhi were logical offshoots of the Treaty of Peace, Friendship and Cooperation, and raised Soviet-Indian relations to a qualitatively new level. They embrace various spheres of the relations between the two countries — political, economic and social — and envisage new forms of long-term cooperation.

On March 14, 1979, during the visit to India of Member of the Politbureau of the CPSU Central Committee, Chairman

of the USSR Council of Ministers Alexei N. Kosygin, the Long-Term Programme of Economic, Trade and Technological Cooperation for the next 10-15 years was signed in Delhi. Under this programme the Soviet Union will, among other things, help expand iron and steel works in Bhilai and Bokaro to boost their overall capacity to 10.5 million tons of steel per year.

A vivid manifestation of Soviet-Indian friendship was the 25th anniversary of Indian-Soviet economic and technological cooperation which was marked in February of this year. "Today Indo-Soviet industrial and economic cooperation has assumed vast proportions," stated Prime Minister Indira Gandhi to A. Kosygin, Chairman of the USSR Council of Ministers in a congratulatory telegram. "The more than 70 joint projects that have been carried out bear striking testimony to this cooperation. We have a particularly high regard for the contribution the Soviet Union has made to India's efforts to build a developed industrial infrastructure."

The USSR has assisted in the construction of such major enterprises on Indian soil as the iron and steel works in Bhilai and Bokaro, the oil refineries at Barauni and Koyali, heavy engineering works at Ranchi, Durgapur and Hardwar, an aluminium plant at Korba, a thermal power station at Nalvelli, a hydropower station at Bhakra, and oil fields at Ankleswar have long been in operation in India. The jointly built enterprises account for over 40 per cent of the steel smelted in the country, 70 per cent of the oil, more than 30 per cent of the petroleum products, 20 per cent of the energy produced, up to 80 per cent of the metallurgical equipment and as much as 60 per cent of the turbo- and hydro-generators produced in India.

Indians are rightly proud of the fact that owing to cooperation with the USSR their country has joined in space exploration. Two Indian artificial earth satellites—Aryabhata and Bhaskara—have been put into orbit by Soviet booster rockets. Preparations are in progress for the launching of a third satellite. The agreement on a joint space flight of a Soviet and an Indian cosmonaut in the near future has become a kind of symbol of Soviet-Indian friendship.

The USSR and India have been cooperating effectively in the world arena, including the UN and other international organisations. Both countries have strongly come out for the deepening of détente in international relations and its application to Asia, complete and full disarmament, the collocation of war and the establishment of such principles in interstate relations as the right of every nation to choose its own political system, the rejection of the use of force or the threat of force, respect for sovereignty and the inviolability of borders, and non-interference in the internal affairs of other states.

This joint position of the two great states is of particular significance in our day, when the world situation has notably worsened as a result of the imperialistic ambitions of the Carter Administration and the intrigues of the Peking hegemonists. Certain circles in the United States wish

to change the balance of power in the world in their favour and resurrect cold war times. They are again speaking the language of diktat in order to impose their will on other countries and peoples. Aided by the Chinese hegemonists, the American imperialists have sharply exacerbated the situation in the direct proximity of the borders of the Soviet Union and the Republic of India.

In view of the current state of affairs, the visit to India of Member of the Politbureau of the CPSU Central Committee, USSR Foreign Minister Andrei A. Gromyko on February 12-14, 1980, generated particular interest among the world public. International observers noted that Mr. Gromyko kept a very heavy schedule, meeting with all state officials; he handed Prime Minister Indira Gandhi a personal message from General Secretary of the CPSU, Chairman of the Presidium of the USSR Supreme Soviet Leonid I. Brezhnev. The talks and negotiations were held in the atmosphere of mutual trust and cooperation typical of Soviet-Indian relations. Affirmed anew during the visit was the resolve of the USSR and India not simply to preserve, but to develop and strengthen relations between the two countries. In addition to bilateral relations, the exchange of views in the Indian capital touched upon world problems, including the situation in the area. "We are deeply concerned over the recent developments in our region," stated Indian Foreign Minister P. V. Narasimha Rao. "They threaten not only the stability of Southwest Asia, but peace around the world as well." The USSR foreign minister charged that the responsibility for this lies fully on the imperialist forces, particularly certain circles in the US. The actions of these forces, which have unleashed aggression against Afghanistan and continue this aggression, can be viewed as nothing but a direct threat to the security and independence of the nations of the Near and Middle East and Southern Asia. The concern of the countries of this region is wholly justified, he said, if one considers the fact that US policy is being dovetailed by the Peking leadership's great-power, hegemonistic course.

The Soviet Union is taking every effort to ease the situation in the region. The following statement by Comrade Leonid I. Brezhnev during a speech at a pre-election meeting in Moscow on February 22 of this year had wide repercussions among the world public, the American included: "I want to state very definitely: we will be ready to commence the withdrawal of our troops as soon as all forms of outside interference directed against the government and people of Afghanistan are fully terminated," he said, referring to the limited Soviet military contingent brought into Afghanistan at the request of its government. "Let the United States together with the neighbours of Afghanistan guarantee this, and then the need of Soviet military assistance will cease to exist. On its part, as is known, the government of Afghanistan has clearly stated its intention to maintain relations of peace and friendship with its neighbours, in particular with Iran and Pakistan. Naturally, we welcome this position of Afghanistan."

The Indian government has taken a similar stance regarding the developments in Afghanistan and the region. It is clear that the presence of a limited contingent of Soviet troops in Afghanistan is predicated upon the national interests of this country and the Soviet Union. In a speech during her visit to the Northern state of Uttar Pradesh, Prime Minister Indira Gandhi charged that the military danger connected with the arming of Pakistan by the United States, China and Saudi Arabia is growing closer to the Indian border. The supplying of Pakistan with armaments, noted the Prime Minister, complicates the normalisation of Indo-Pakistan relations. The head of the Indian government has on a number of occasions expressed the country's desire to establish good-neighbourly relations with the states lying on its borders, including Pakistan and China. However, Mrs. Gandhi believes that these relations should not be fashioned to the detriment of the interests of other states.

In view of the current situation, against the background of the tensions and conflicts being whipped up in Asia by Washington and Peking, friendly relations between the Soviet Union and India are becoming an important factor of peace and stability. They convincingly demonstrate the benefit that can be derived from contacts between states with differing social systems when their policies are directed at peaceful construction and the strengthening of world peace and security.

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PERCEPTIONS, VIEWS, COMMENTS

BOOK REVIEW: "BUNDESWEHR AND NATO"

Moscow SOVIET MILITARY REVIEW in English No 5, May 1980 p 58

[Review of "The Bundeswehr and NATO", by Col V. Lavreychuk, Cand. Sc. (Military)]

[Text]

UNDER COVER of propaganda about a mythical "Soviet threat," the aggressive NATO bloc is intensifying the war potential of its member-countries.

The FRG, with its half a million strong army, is an active member of NATO. The Bundeswehr, together with the USA forces stationed in Europe, forms NATO's main striking force and occupies a dominant position in the land forces of the central European theatre of war.

The Military Publishing House of the USSR Ministry of Defence has issued a book entitled the *Bundeswehr and NATO** — a historical study of FRG military development from 1955 to 1979.

The author, basing his research on documents and facts, proves that the Bundeswehr is not only an offspring of West-German imperialism. Immediately after the rout of Nazi Germany, imperialist groups in the US started a frantic

search for ways of drawing into the orbit of war preparations the three western occupation zones of Germany and later — the state with its capital in Bonn.

Even the West-German historians officially admit that as early as 1949 a secret period of training of the West-German army began. The facts cited certify that the western nations' actions in militarising West Germany were carefully planned even before the formation of the FRG.

The author underscores that the formation of the NATO bloc and the subsequent inclusion of the West-German armed forces in it was decisive in the creation of the Bundeswehr.

The author elaborates on the structure of the Bundeswehr, its place and role in NATO, the notions prevailing in the Bundeswehr on the assignment and use of the fighting arms and contemporary FRG military-strategic concepts.

Since 1966 the leadership of the joint NATO armed forces in the central European theatre of war has been in the hands of the West German generals. The FRG has representatives in the staffs of eleven NATO headquarters which control different central and north European strategic regions. The territory of West Germany has been made the main base for deploying weapons of mass destruction and for dumps of all kinds of military supplies, including nuclear weapons. Already now, in peacetime, 22 NATO divisions and almost 1,700 combat and auxiliary aircraft are concentrated there.

West Germany, turned into NATO's forepost and saturated with troops and combat equipment, is constantly being used as a training ground for manoeuvres, in the course of which offensive operations in dealing nuclear blows at the socialist states are practised.

* N. Glazunov. "Bundeswehr and NATO" Military Publishing House, 1979 (in Russian).

PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON U.S. STRATEGY AND TACTICS

Moscow SOVIET MILITARY REVIEW in English No 6, June 1980 pp 40-41

[Article, under the heading "Military History", by Col N. Nikitin, Cand. Sc. (History): "Aggressors' Strategy and Tactics"]

(Text)

NOW THE IMPERIALISTS, in the first place those of the USA, are ever more openly relying on the use of armed force against the national-liberation movement. In these conditions it is increasingly important for the peoples and the governments of the developing countries to be vigilant and to be able to expose sinister imperialist schemes and to counteract any aggression.

If we study the local wars unleashed by the imperialists since the Second World War we see that much attention was paid to achieving a surprise attack. The aggressor tried to select the time, place and method of delivering a blow so as to ensure immediate success and a subsequent favourable development. Great importance was attached to a strong initial blow. For instance, in 1967 Israel dealt a surprise massed air strike at the Arab forces and mainly at their air forces and then quickly committed its ground forces to action.

When planning its aggression the Israeli General Staff made wide use of misinformation to conceal the direction of the main attack, which was to be delivered against Egypt. To this end the Israeli Knesset openly authorised its government to carry out military operations against Syria, and the Is-

raeli General Staff mobilised and concentrated troops on the Syrian border. Information began to be spread through various channels on Israel's alleged intention to strike at Syria at the end of May and only after that to begin military operations against Egypt. To mislead the Egyptians as to the intention of the forthcoming operation, the Israelis simulated the deployment of a large grouping in the south and demonstrated preparations for an offensive, although the main blow was to be dealt at Ismailia.

Israeli aircraft approached targets unobserved at low altitudes from the direction of the Mediterranean and being under cover of "training" flights of the air arm of the US Sixth Fleet in the eastern Mediterranean. Owing to a surprise attack the aggressor was able to deprive the Egyptians of air cover and support, and this led to their defeat.

Surprise was aimed at in the course of military operations too. For instance, in 1950 during the Korean war the Americans carried out a large landing operation at Inchon. In order to achieve surprise they resorted to a number of misleading measures. Demonstrative landings were executed in different coastal areas. Landing parties were distributed among remote South Korean and Japanese ports and linked up in the

area of operations. Embarkment and departure of landing parties from the concentration areas took place only at night.

In the initial period of the war in Vietnam the US Command made wide use of air mobile operations. Their purpose was to lift ground troops by helicopter to strike surprise blows and seize specified areas. Such operations were carried out as follows. At night, one or two days before the beginning of an operation, special groups were landed near the area, captured the landing zones and held them till the arrival of the main landing force. To carry out such operations a special air mobile division was formed in the USA which could be airlifted by its own helicopters in three flights.

According to the US Command air mobile operations will be widely resorted to in future wars to seize passes, road junctions and other objectives using vertical take-off and landing planes and helicopters.

The US Command strove to attain surprise by airlifting and landing airborne forces at night and without preliminary bombardment. Various forms and methods of military operations were used.

When using the "hammer and anvil" method a large party was landed in the patriots' rear to serve as the anvil whereas the units advancing from the front played the part of the hammer. Secrecy of preparations and speed of airlifting were of great importance.

The "rat's hole" method consisted in encircling patriots with airborne units and setting up ambushes in the direction of their advance.

In the "direct hit" tactical method, reinforced motorised infantry battalions would advance in different directions and then change their route suddenly in order to encircle patriots in a definite area.

To achieve operational and tactical surprise, the US Command would spread false information concerning the forthcoming operations and especially their place and scope.

Recent events show that US military and political leaders are taking new steps to use their armed forces in the role of "world gendarme," to develop new strategy and tactics for suppressing the people's struggle for their national interests and the independence of their countries. After the downfall of the Shah's rule in Iran the Pentagon advanced the concept of "quick response

behind the horizon." This concept envisages a display of strength on the so-called "arc of instability" which, according to American strategists, embraces vast areas stretching from South Africa to Southeast Asia. Accordingly the Pentagon has begun to form a "quick response force" for use in case of "emergency" or in "critical situations in the hot points of the planet."

According to foreign press reports the "quick response force" exceeds 100,000 in strength. It includes the 82nd Airborne Division, 101st Air Mobile Division, two marine divisions and 2-4 "special-purpose" naval squadrons. This invasion force can also include 5-6 air force wings numbering from 75 to 125 aircraft as well as units of different fighting arms.

The units and formations of the "quick response force" are undergoing intensive training in the climatic conditions closely resembling those of likely operation areas. American military experts say that more than 40,000 American soldiers have been trained to fight in deserts and capture oil fields.

According to the UPI Agency, the "quick response force" includes a 5th Special-Purpose Group of so-called special forces, which is intended to create diversions and destroy important installations. World press reports contain numerous facts showing that special force instructors and CIA agents are preparing mercenary counter-revolutionary bands to operate in Afghanistan, Iran and other countries.

In addition to the "quick response force" the Pentagon has created forces for constant US interference in the Caribbean Sea and against progressive governments and national-liberation movement in Latin America.

One aspect of the mounting militaristic tendencies of the USA is its striving to build new military bases, mainly in the Middle East and Africa. Such bases are intended as strong points for the "quick response force" and a large naval formation, including aircraft carriers, which has been created by the Pentagon in the Indian Ocean and the Arabian Sea. To build a network of such bases the US Government is exerting pressure on Somalia, Kenya, Oman and other countries adjoining the Indian Ocean.

It should be stressed that Israel and Egypt willingly agreed to offer military bases for the American armed forces. The US Government has allotted an additional 300 million dollars to further improve the big base in Diego Garcia. This base is

now ready to accommodate strategic bombers and strike aircraft carriers. The network of new bases, according to its creators, will allow the USA to deal surprise blows at refractory countries in the Middle East and Southeast Asia.

The American imperialists' "partners" in fighting the national-liberation movement are the Chinese expansionists who carried out undisguised armed aggression against socialist Vietnam in February-March of last year. Today they again threaten to conduct a "punitive operation" at the "appropriate time." To this end the Peking leaders have massed 15 divisions and 6 army corps on the borders with Vietnam and Laos. China trains and sends armed bands of spies and saboteurs to Vietnam and Laos, Kampuchea and Afghanistan, India and Burma.

The imperialists are desperate in their efforts to restore and consolidate their positions in the developing countries. But all their attempts are doomed to failure. This is guaranteed by the courageous struggle of the peoples for freedom and independence and the reliable support of this struggle by the Soviet Union and other socialist countries as well as by the progressive forces of the whole world.

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1817

PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON U.S. ARMS EXPORTS

Moscow SOVIET MILITARY REVIEW In English No 6, June 1980 pp 45-47

[Article, under the heading "International Affairs", by A. Markov: "Dangerous Business"]

[Text]

The imperialist powers have accumulated enormous arsenals of weapons. They are scattered all over the world, and from time to time are put into action. As a result, the wars and conflicts unleashed or provoked by imperialism in different parts of the world during the last 30 years took a toll of over 10 million lives.

The leading capitalist states export from 30 to 50 per cent of so-called conventional armaments they manufacture, drawing into the arms race more and more countries, above all from among the developing, to whom they deliver over 70 per cent of the weapons. The total annual volume of world trade in arms is estimated at 26 000 to 28 000 million dollars.

Modern tanks, aircraft and ships, by their combat qualities, cannot be compared with their predecessors of the World War II period. The speed, mobility and manoeuvrability have increased, as well as the fire power of the weapons, their range and precision. The cost of military equipment has gone up, and consequently the profits of the arms manufacturers, who have an interest in keeping the arms drive going. The cost of a tank has risen to 600-800 thousand dollars, and the latest American XM-1 costs over 1 million. A modern fighter plane costs up to 25 million dollars and a strategic bomber nearly 90 million.

The United States of America is the biggest arms merchant. Military deliveries are now an important component of the American foreign "aid" programme and a means of bolstering up the Washington-oriented regimes and governments.

During the 30 post-war years (1946-76) the USA exported weapons to a total exceeding 111,000 million dollars. At present the figure is nearing 135,000 million.

Acknowledging that the United States' share in arms deliveries is more than half of the world total, President James Carter has reiterated on many an occasion his country's readiness to reduce their sale. In practice the opposite is happening: in 1977 the total of contracts on arms deliveries reached 11,400 million, in 1978—13,600 million and in 1979 it topped the 14,000 million dollars mark.

Trade in arms has opened up wide spheres of activity for the US military-industrial corporations who derive very considerable profits from this business which threatens the cause of peace. Today the briefcases of the American dealers in death are filled with orders estimated at more than 35,000 million dollars. The bulk of this sum goes to combat and military-transport planes and helicopters, missile installations and multi-purpose missiles, armoured vehicles, warships and electronic devices. Conventional armaments include special weapons, which will take either conventional or nuclear charges. The US has supplied many countries of the world with more than 18 thousand such weapons. Some of these countries are now able to develop their own nuclear charge for use with these weapons. This is one more dangerous aspect of the American export of weapons.

For France and Great Britain trade in weapons is also a traditional business. They export to many

countries practically all types of armaments, in the first place — aeroplanes and helicopters, missiles, armoured vehicles, ships and electronic devices. The Federal Republic of Germany and Italy too are becoming big dealers in death-dealing hardware. It is typical of the FRG, in particular, to take part in bilateral and multilateral agreements with its NATO partners, which cover more than half of the projects for manufacturing and selling armaments such as Tornado and Alpha-Jet planes, Roland anti-aircraft missile complexes, Milan anti-tank guided missiles and others. Canada, Belgium, the Netherlands and some other NATO states also sell weapons, though on a limited range.

In recent years, the United States, not forgetting its steady customers in South-East Asia (Japan, South Korea and Taiwan) has been giving more and more consideration to arms dealers in the Middle East and the Persian Gulf countries. Arms flow in there from Great Britain and France too.

The Western states, who have an interest in the power resources of the Middle East countries, make extensive use of arms exports as an "equivalent" of oil imports and a means of improving their balance of payments. For example, armaments make up 4 to 8 per cent of France's overall exports, but its trade with the oil-producing countries tops the 20 per cent mark. As for the United States the figures are 11 and 80 per cent respectively.

The main armaments market — the Middle East and the Persian Gulf countries — is at present oversaturated with arms, but they are still being brought into these countries. The USA, for example, plans to deliver to Israel 3,000 million dollars worth of weaponry in addition to the annual deliveries worth 2,000 million dollars, and to supply Egypt with armaments worth 1,500 million dollars, as a kind of payment for the separate "peace treaty".

There are all grounds to believe that China may become a new market for Western armaments and military technology in the eighties if effective measures are not taken to put a stop to the planned deliveries of weapons to it. To arm the Maoists means to encourage their expansionism and risk the future of humanity.

The sale of licenses for the manufacture of weapons greatly promotes the spreading of arms to all parts of the world by enabling the importing countries to create their own military-industrial bases. Israel is a case in point. Besides making enormous purchases of weapons and military equipment in the West, today it itself manufactures from 40 to 60 per cent of armaments and an-

nually exports them to a total of over 500 million dollars. With the help of the imperialist powers war industries have been created in the RSA, Brazil and Argentina. Today these countries export arms themselves. War industries are also being developed in Egypt, Saudi Arabia and a number of other Middle East countries. Thus the arms trade sets off a kind of chain reaction—an arms race on a global scale.

The enormous deliveries of modern weapons require the training of personnel to man them in the recipient countries. The result is a means of influencing those countries by the staff of advisers, instructors and other Western "specialists," whose numbers are now impressive. For example, before the fall of the Shah's regime in February of 1979, there were 50 thousand of them in Iran. In Saudi Arabia today there are more than 10 thousand military specialists of various kinds. The imperialist powers make wide use of the numerous army of advisers to interfere in the internal affairs and foreign policy of the countries dependent on them.

The unceasing arms drive is a heavy burden on the shoulders of the working masses, hampers the economic development of the importing countries and diverts enormous resources to unproductive expenditures. As a rule, the weapons coming from the West get into the hands of reactionary regimes, which use them to suppress national-liberation and revolutionary movements, and against the newly-free states that have chosen the road of non-capitalist development. For example, by delivering weaponry to Pakistan Washington encourages the policy of the leading circles in that country, stiffening its attitude towards some of its neighbours, and above all encouraging military interference, from its territory, in the internal affairs of Afghanistan.

The Western countries use all kinds of arguments to justify their arms trade. They claim that armament sales are hardly more than ordinary business deals. But "it is doubtful whether military deliveries fit within the framework of conventional trade," L. I. Brezhnev noted, "it is absolutely clear that this is a political question. Deliveries of weapons cannot be considered without due account of the purpose for which they are acquired."

The document "On Practical Ways of Ending the Arms Race," submitted by the Soviet delegation to the special session of the UN General Assembly in the summer of 1978, stated that this problem

must be resolved in the general context of the relaxation of international tension and the strengthening of world peace. In its final document the UN special session underlined that the problem must be resolved "with due regard to the necessity for all states to safeguard their security, and to the inalienable right of the nations now under colonial and foreign domination to self-determination and independence." At the same time the document stresses the necessity to exclude the delivery of weapons to aggressor states or to countries that are attempting to make use of the fruits of aggression already perpetrated.

Thus the Soviet approach to the problem takes into consideration, in accordance with the law, the interests of the nations which are repulsing the schemes of the aggressors and are forced to acquire weapons in order to strengthen their defences and safeguard their sovereignty. "When the aggressor tries with a sword to slash the principle of peaceful coexistence," said L. I. Brezhnev, "a people, subjected to aggression, is entitled to take up arms in defence of its freedom, while other peoples are entitled to render it help by all necessary means." It is precisely in these cases that the Soviet Union gives military assistance to developing countries.

One of the most urgent tasks in the struggle for detente and disarmament is to shut off the flow of weapons from the USA and other NATO countries, especially to those regions of the world where war is being waged or where there is a threat of aggression against the nations fighting for their liberation from the colonial and racist oppression, and also to the Chinese People's Republic — the source of aggression in the Far East and South-East Asia.

The Soviet Union and other states of the socialist community steadfastly pursue the line of relaxing international tension.

The proposals concerning the tasks of the second decade of disarmament advanced on behalf of the Soviet Government in a letter of the USSR Foreign Minister to the UN Secretary-General are a brilliant illustration of the consistency with which the Soviet Union is struggling to contain the arms drive, for genuine disarmament and further progress in relaxation of tension and in guaranteeing a lasting peace the world over.

The constructive policy of the USSR and other socialist states meets with understanding from the general public, who demand a stop to the senseless waste of gigantic resources and the switching of the funds used for military purposes to the solution of urgent social problems.

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PERCEPTIONS, VIEWS, COMMENTS

COMMENTS ON U.S. INDIAN OCEAN PLANS

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 80 pp 47-49

[Article under heading "International Affairs" by V. Yefremov: "The Pentagon's Plans for the Indian Ocean"]

[Text]

THE Indian Ocean basin is bordered by dozens of sovereign Asian and African states inhabited by a quarter of the earth's population. Turning this basin into a zone of peace and cooperation is an age-old dream of the nations of the region. Unfortunately, however, it has been a conflict-ridden area, one which has seen the stockpiling of huge amounts of weaponry that is often put to use.

The progressive world public has expressed serious concern of late over feverish US military preparations in the Persian Gulf area and the Indian Ocean basin on the whole. "The iron fist in a velvet glove" is the metaphor increasingly being used by the Western press to describe US policy in this resource-rich and strategic corner of the globe where the Pentagon has concentrated vast military strength.

Naturally, the peace-loving forces cannot react indifferently to the Pentagon's threatening actions. Specifically, the participants of international public conferences held in late March in India and Malta angrily protested the dangerous militaristic designs of imperialism in the Indian Ocean basin and called for the immediate withdrawal of American military and other forces. Attending the conference in Delhi were people with different ideological views and of various faiths from more than 65 countries, and representatives of 10 international organisations. Some 50 delegates from 25 European, Asian and African countries took part in the conference in Valletta.

The declarations adopted at these conferences express deep concern over the fact that the provocative actions of the US have resulted in a sharp worsening of the international situation on the whole and in the Indian Ocean basin in particular. And there is more than enough cause for this concern.

Frightened by the scope of the national-liberation movement in the Asian and African countries, the US is attempting to turn back the march of history with gunboat diplomacy. It does not find the developments in Iran to its liking, and President Carter is accusing the leaders of the Islamic Republic of Iran of "irresponsibility" and of being incapable of "putting their country in order." While instructing the Iranians on how to keep house and establish order, he arrogates himself the power to "punish Iran." The American president is not ecstatic over the state of affairs in other countries in the region, either. He claims that "unstable and uncontrollable forces are in operation in Southwest Asia," and that the Russians, with their "invasion," "have stirred up forces of historical, economic and ethnic conflicts which cannot be controlled." Mr. Carter's contention that the intensified creation by the United States of a quick response force, the military build-up in the Indian Ocean and other militaristic US preparations "are designed to consolidate peace" is a mockery of common sense.

What are the goals of this lie — the lie of the "Russians' war against the Afghan people," of the "Soviet threat" to Pakistan and Iran?

"The anti-Soviet hysteria," Leonid Brezhnev stated at a pre-election meeting of voters from the Bauman Constituency of Moscow, "was needed not only for somebody riding the crest of this wave to win the presidential elections in autumn. The main thing is that the United States has decided to create a network of its military bases in the Indian Ocean in the countries of the Near and Middle East, and of Africa. The United States would like to subordinate these countries to its hegemony and to pump out their natural wealth without hindrance. And in the process to use their territories in its strategic plans against the world of socialism and the popular-liberation forces."

This is why Washington declared the Near and Middle East, and also Southwest Asia and the entire Indian Ocean a zone of "vital US interests." This is why the Pentagon launched large-scale military preparations in the Indian Ocean basin, particularly in the Persian Gulf area. The US' vested interest in the Persian Gulf is common knowledge: the region holds almost half of all the known oil resources in the non-socialist world and accounts for over 60 per cent of the capitalist countries' oil imports, providing US monopolies huge profits.

The American military threat to the countries of the Near and Middle East did not arise today and in connection with the developments in Afghanistan. In 1974 US Secretary of Defence Schlesinger threatened to seize the oil fields in the region by force if the oil exporting states "hurt the industrial world." It was approximately at that time that the "small steps" policy of Secretary of State Kissinger was conceived. The "small steps" amounted in the long run to the Camp David deal and Sadat's capitulation to Israel, and the punitive American plans to create the "quick response corps," which presently numbers 110,000 men, and, with the support subunits now being formed, will, as US Army Chief of Staff E. Meyer stated, comprise around 200,000 men.

The plans to create the Fifth Fleet, intended for deployment in the Indian Ocean, were put on Washington drawing boards quite recently. As of April 1 of this year the total number of US military vessels in this ocean reached 31, including the Coral Sea, Nimitz, Kitty Hawk and Midway aircraft carriers, missile cruisers and warships with 24,000 servicemen on board. One part of them patrols the Bahrain area, another, the western portion of the Arabian Sea, and a third, the region near Karachi. A detachment of the Seventh US Fleet consisting of several landing craft and 1,800 marines appeared in mid-March in the Arabian

Sea. Another large formation, including seven warships, among them the Okinawa aircraft carrier and various landing vessels, was brought over from the Far East. The "Washington Post" reported that "at the instruction of Defence Secretary Harold Brown the Pentagon has begun elaborating a detailed scheme for mining the Persian Gulf." According to press reports, top officials in the Department of Defence do not rule out the possibility of US use of tactical nuclear weapons in the Persian Gulf.

Political observers in many countries, the US included, believe that the "Carter Doctrine" set forth in the President's State of the Union message to Congress is an offshoot of the dream of John Foster Dulles to extend the "nuclear umbrella" everywhere possible. What is being referred to in this particular instance is an attempt to create a "NATO branch" in the Middle and Near East whose main striking power would be American nuclear forces. Moreover, Washington intends to deploy new bases here suitable for supplying ships and aircraft with nuclear weapons.

The main base is to be the combined air and naval base on Diego Garcia Island. A total of 45 various strategic installations have already been built on the 30-sq km island: piers for warships of any displacement, an air-strip capable of handling B-52 bombers, stores of ammunition and up to 100,000 tons of fuel for carrier striking forces and submarines. Deployed at the base are several long-range bomber squadrons and R-3 Orion reconnaissance planes. There were 1,100 men stationed at the base at the beginning of the year. The expansion of the Diego Garcia complex is apace. The base is to serve as the main strong point of the US Fifth Indian Ocean Fleet, a spring-board for dispatching the "quick response corps" to the Middle East and the Persian Gulf.

Diego Garcia is the largest and by far not the only US base in the Indian Ocean. For a number of years now the Pentagon has been using the island of Masira, which belongs to the Oman Sultanate and which lies near the shores of the Arabian Sea, at the approaches to the Persian Gulf. The Arabian press reports that a Command of US Armed Forces in Oman and the Persian Gulf is already being stationed there. In mid-December of last year, an American military delegation visited Oman, Saudi Arabia, Somalia and Kenya to obtain permission from the leaders of these countries to build their military bases on their territories or to use existing bases on them. According to press reports, the Somali government agreed

to allow American forces to use the country's base in Berbera, in the Gulf of Aden. American servicemen are already being shipped there.

Outside of Egypt and Oman, however, none of the Arab states wants to pull the chestnuts out of the fire for Uncle Sam. The government of Kuwait, for example, declared that there exists no threat, other than American, to the region, that there is no need for US "aid," and that the nations of the Middle East would be better off if the Americans would leave them in peace. The government of Saudi Arabia likewise let the Carter Administration know in no uncertain terms that it should not count on building bases in that country. The leaders and public of Syria, Iraq, Algeria and South Yemen assailed the Pentagon's plans in the Indian Ocean. The peoples and governments of Afghanistan, India, Lebanon and Ethiopia, let alone Iran, take an equally dim view of American military activity in the Indian Ocean.

The United States' hopes for support from its Western allies were shattered as well. "Many West Europeans got the impression," wrote the London "Times," "that they were expected automatically to rally round the American flag. Since they never harboured particular confidence in Jimmy Carter's judgments, this meant that too much was being expected of them." Admittedly, in its "White Book on Defence," published in April, the British government called for increased military activity by the country east of the Suez—in the Persian Gulf and the Indian Ocean. The US' other NATO allies, however, limited themselves either to a demonstration of symbolic solidarity with Washington's actions or remained on the sidelines of the sabre-rattling. A number of West European governments are pursuing a Near and Middle East policy far different from that of the US.

Nevertheless the American threats are more than sabre-rattling. They are buttressed by real measures and concrete plans for the use of "any means necessary," including pressure on US allies. In early April President Carter announced the severing of diplomatic relations with the Islamic Republic of Iran and the expulsion of Iranian embassy and consular staff. He placed a ban on the export of all commodities to Iran, including foodstuffs and drugs and instructed the secretary of finances to "audit" Iranian assets which had earlier been illegally frozen in the US. In an interview to West German television Mr. Carter stated that US actions vis-a-vis Iran would be strong and decisive, including military measures. He said that he had established a concrete deadline by which Britain, West Germany, France and Italy are to take their own measures to buttress those which the US has taken against Iran.

It is clear to any sober-minded person, however, that the problems now existing in the Middle East, the Persian Gulf and Indian Ocean are not amenable to a military solution. The unconditional refusal to interfere in internal affairs and the consistent implementation of the principles of peaceful coexistence and mutually advantageous co-operation are the only conditions necessary for a genuine settlement of these problems in the interests of the nations of the region and of other nations as well.

Such is the stand of the Soviet Union, which has consistently and firmly called for the consolidation of world peace and security and for the preservation, extension and deepening of détente. The Soviet people demand an end to the crude blackmailing of Iran, Afghanistan and other countries in this region. The US fleet must be withdrawn from the Persian Gulf. The peoples of the world say: "Down with new military bases and imperialist military blocs in the Indian Ocean. It must, finally, become a zone of peace and peaceful cooperation."

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PERCEPTIONS, VIEWS, COMMENTS

GERMAN SOURCE ON AUTOMATION IN SOVIET ARMED FORCES

Frankfurt/Main SOLDAT UND TECHNIK in German No 2, Feb 81 pp 63-67

[Article by Col Erich Sobik, Ret.: "Automation in the Soviet Armed Forces--On the Road to Computer-Controlled Command and Training?"]

[Text] Soviet theory on war and on the armed forces, in answering all questions concerning war, starts with the basic assumption that it alone can point to a solution to these questions resting on scientifically-based knowledge. But anyone who wants to command "scientifically" on a preferred basis must naturally pay special attention to the achievements of science and technology and take them properly into consideration. The Soviets certainly are also doing that. For them, too, the concept of the "computer" is a kind of fascination which represents progress, as well as the modern and scientific approach. The basic principle to the effect that the areas of military affairs must be constantly adapted to a steady process of adjustment to scientific-technological progress and must be modernized that is, unit command and unit training--applies above all as far as the Soviet military command is concerned.

Improvement of Unit Command With the Help of Automation

In solving this problem, the Soviet military command must start with the basic assumption that the decisive criteria consist of the following:

A high degree of mobility of military units coupled with tremendous fire power;

Frequent and rapid situation changes during combat and the compulsion rapidly to adjust to them;

Frequent need for regrouping, for improvising, and for replenishing military units on the basis of personnel and equipment losses.

The ability quickly and effectively to react to these requirements, according to the Soviet view, is one of the most important prerequisites for the ability successfully to conduct a particular combat operation. Time is the chief criterion here. The effort to overcome these difficulties has led to a new science called "military cybernetics" with whose help:

The best systems and forms of unit command organization,

Optimum methods of their practical implementation and

Proposals for the use of electronic and cybernetic equipment, which enhance the effectiveness of unit command, are to be worked out.

On the whole, it is believed, that the following ways must be pursued toward the perfection of unit command:

The drafting of optimum organizational structures for major and minor units as well as their headquarters;

A scientific determination of the scope of information adequate for optimum command;

The search for the most effective methods to process the information items in the course of preparing the situation estimate and making the decision;

Extensive automation of unit command systems and

A special methodology of selecting and training commanders and staff officers.

The present-day situation connected with the attempt to automate unit command as extensively as possible looks like this: The possibility for the automation of command system depends on the degree to which mathematical and formal-logical methods of describing processes and phenomena of armed combat can be introduced into the theory of the art of war. According to the Soviet view, an automated system of command must reveal a program that should be as complete as possible. It is especially the complete program which supposedly determines the extent to which the machine [computer] can find new ways of solution. In drawing up a program, it is considered to be decisive to investigate whether the nature of armed combat really permits a mathematical description and whether the existing apparatus is capable of illustrating these processes. Thus, the entire problem as a whole would have to be subdivided into three subproblems:

Processes of armed combat which essentially are subjected only to the laws of the physical world, such as processes of guiding and controlling technical complexes, can be fully automated. This supposedly applies especially to the strategic reserve forces, to the air defense forces, and to the air and naval forces.

The situation in the case of the ground forces is supposed to be more difficult. Here there would have to be a "harmonious" division of labor between man and machine. Man would have to assign to the electronics systems all jobs that they can do better and faster than man and that is supposed to be a whole lot. Man himself should only handle control and decision-making functions. That is the only way in which human advantages as well as machine shortcomings can be reasonably compensated for and the only way in which the advantages of both can be used in an optimum fashion. Beyond this, man must constantly try to build ever more perfect machines.

The third complex supposedly consists in the effort to attain the highest step in automation in all command systems within the overall activity involved in unit command. At this point it must be observed that, to be sure, the possibility of creating an artificial analogy to the human brain does not conflict with the laws of physics, chemistry, and information theory but that, according to the current

systems of science and technology, such machines could not achieve the quality of consciousness. This means that these machines could not think independently. In other words, the development of an "electronic strategist" would seem to be impossible for the time being and over the next several years, probably even decades.

On the whole it must be observed that the Soviet military command has certainly recognized the advantages but also the limitations of automation in unit command.

Advantages of Automation

According to the Soviet view, the advantages of automation are to be found primarily in the field of collection, storage, and fast and accurate processing of information. Above all, one supposedly can avoid the presently so frequently repeated reports and self-affirmations. The Soviets stress that--compared to World War II--the volume of information items on the division echelon has grown by a factor of 10, on the field army echelon by a factor of 8, and on the front [army group] command echelon by a factor of 6. They believe that, in view of the anticipated outpouring of information, only electronic data processing equipment would be in a position to develop adequately limited, effective aid variants for the decision-making process. These systems relieve the individual of laborious, time-consuming detail work and enable every commander to concentrate his full energy on his most important task which is to come up with a situation estimate and to make his decision.

On the whole, the advantages of unit command automation reside in the fact that they reduce the subjective decisions of the commanders through their ability:

(1) process the developing information items on a larger scale,

(2) more thoroughly to process those information items and

(3) make in time in advance the results and consequences of the decisions.

Electronic data processing systems in terms of their operation are not exposed to the same objectively existing natural limitations as in the case of man, nevertheless they can harness the advantages of these machines advantageously for the sake of the man, provided only if one does not forget to consider their limitations.

Limitations and Precautions

The advantages of the aid and aid electronic machines--in other words, electronic data processing equipment--are to be found where the effectiveness of the machines is less than that of the man's effectiveness of the individual.

It is evident today that the strength of the individual machine is his ability to come up with variants and combinations and situation estimates, to see things from the rear, to give quick and careful consideration, and to allow his creative imagination and his sense to do their job; on top of that there is the individual's ability to make the right decision on the basis of the very effectiveness of his imagination, his sight, etc. However, one must not forget that the commander's creative activity in utilizing the machine is the most important prerequisite for the use of electronic systems. In the process of analyzing, strategizing, and processing

the information items but also in the selection of the optimum variant. Only if the commander has clearly formulated his mission, only if he has designated the manpower and equipment, only if, so to speak, the "main parameters"--to use a scientific-technological term--for the coming combat operation have been spelled out, only then can electronic equipment help make the unit command effort more effective.

The Soviets believe that the main difficulties, which thus also point to the limitations of any kind of unit command automation, reside in the following:

The commander who must organize the particular combat operation would first of all have to think of his combat mission which he is supposed to accomplish and to whose accomplishment he is bound as if by "law."

He is rather restricted supposedly in the selection of the type of combat to be conducted and he is often further restricted by rather incomplete information as to enemy intentions.

In any decision-making situation, he would also have to consider the moral and psychological state of the troops. Unit command above all means leading men and that clearly enough outlines the limitations and difficulties connected with any automation.

Thus, a real perfection of unit command with the help of automation cannot be achieved or replacing men with machines but only if it is possible to combine man and machine, as components, into one unit, where the advantages of both of them are brought to optimum fruition. But primary clearly rests with man.

Voices of Criticism

It seems very logical that an undertaking--such as the automation of unit command in the Soviet ground forces--cannot be carried out over night. And thus it is no wonder that there have been misconceptions, planning mistakes, and setbacks. The military press often reports on that. Here are some examples. Swiss Col E. Kars writes as follows: "Basically, everybody realizes the importance of this matter, everybody approves it and affirms it. Senior superiors are accommodating and helpful. But sometimes, when the thing is to be implemented in practical terms, difficulties crop up and that leads to all kinds of excuses. Some say that they have 'not yet gotten to this,' others maintain that 'they are swamped with current business,' and still others simply do not understand the real advantage deriving from the use of a new technique. One would like to assume that it would be primarily the logistic support services that would use the new methods of computation and computing with the help of machines."

In its 4 March 1957 issue, KRASNAYA ZVEZDA printed the following: "It must however be kept in mind that, in spite of the possibility of visually illustrating our own situation and the enemy situation on the screen, on a cartographic foundation, the map remains the main and the most important working document. Various operations, divisions are depicted on the map. It is one of the main documents which the staff uses in planning operations and combat actions, in working out assignments for the various units, and in checking on the course of assignment accomplishment."

The further development and perfection of automatic command systems means that the commanders must enhance the staff performance level and must improve work methods using the map in every respect."

It is obvious that some officers simply cannot be persuaded to dispense with their old, time-tested means and methods. This is blamed also on officers or duty stations "whose job it is to introduce electronic technology on a broad scale." Obviously, there are still enough officers who have only a very vague idea as to the practical possibilities of unit command automation.

The increasing volume of paperwork is often blamed for this frequently encountered attitude. Officers, who have been trained for a long time and who are highly skilled, are also being simply "burned up" for lesser tasks that normally should be handled by sergeants.

Here is what KRASNAYA ZVEZDA has to say on that: "Automatic command systems have the best future prospects imaginable. But the use of the very latest technical unit command equipment will yield a maximum effect only if we have a perfect mastery of such equipment. That seems to be only one aspect of the problem--and a less important one, at that. The more important aspect--the aspect of creating a really useful command system--is indeed more difficult. If we have such a system, then it should only be a matter of time for us to have a perfect mastery of it."

Need For Modernization in Training

According to the Soviet view, the Soviet armed forces currently face a very critical question: How will it be possible during the coming years to give officers and enlisted men the kind of training that will be necessary in order to cope with the problem deriving from the fact that the subject matter to be imparted is becoming more and more voluminous and complicated year after year and that the available time nevertheless either remains the same or decreases? Soviet experts have outlined three ways to solve this problem:

Restricting the subject matter to be taught only to the essentials.

Intensifying training through the development and use of effective technical training aids and modern training methods and

Developing methods which make it possible to increase the assimilation capacity of the trainee.

Of course, there is a connection between these three ways.

Restricting the Subject Matter To Be Taught

The Defense Ministry is the only agency that can decide on that. It issues corresponding instructions which must be strictly carried out since they are orders. While the Soviet military press otherwise is very much inclined toward criticism, it has nothing to say whatsoever on that topic. Of course, some authors hope that, some day, all training and education for the Soviet armed forces will be replaced by a computer-controlled system and will thus become considerably more effective. This is very gentle criticism but it applies to the next several decades, not just the next few years.

There is no doubt that the training programs are subjected to constant review as to their practicality and modern approach. That of course does not mean that they are always highly modern. As everybody knows, reforms are particularly difficult to implement in that country.

Development of Effective Technical Training Aids and Methods

The beginning in this field is definitely to be found in a study of the United States press. Ever since about the middle of the sixties, Soviet experts very intensively have been describing the effort of the United States armed forces to modernize their training. At first they only reported and described and refrained from any commentary because they obviously had no opinion of their own on that score.

The 24th Party Congress in 1971 brought a change. As one of the main tasks for the next 5 years it demanded "the further development of college and technical school training in line with scientific-technological progress." This is why they began to look for new ways and methods. Progress was very poor and everything took longer than they had hoped.

Modern Equipment for Training Facilities

The creation of modern-equipped classrooms was considered the first step toward the intensification and modernization of training. Thus, MG K. Sevastyanov wrote the following in KRASNAYA ZVEZDA on 14 January 1970: "We are visualizing classrooms equipped with the kind of apparatus which will make it possible to present training films, film clips, and slides, the kind of equipment which will enable the instructor quickly to check on the work of the students; but that equipment must also include television sets, videotape units, and dictaphones--not to mention tape recorders which are now being used in many classrooms. All of these resources will considerably improve the quality of student knowledge and will considerably shorten the time needed by students to acquire the necessary skills and knowledge."

Since that comment, one decade has passed and the problem is far from solved.

In entering this "virgin land," it was not possible simply for topside to issue some orders; numerous conferences and discussions were necessary, resistance had to be overcome. New chairs are being established at the numerous military academies and new job slots are being made available while funds are being allocated. A long-term process was launched in order to attain the goal which the United States attained decades ago, that is, modern-equipped training and teaching facilities.

Of course, progress was made. For example, Naval Captain Engineer Pomin wrote the following in the navy magazine MORSKOY SBORNIK in August 1979: "Today, instruction is being given in rooms with gentle and evenly distributed light, rooms which are partly or fully automated, equipped with projectors for slides and film and furnished with comfortable furniture. The instructor can thus back up every lecture with color and black-and-white slides, film strips, and tape recordings. One of the classrooms is equipped with a television system for training purposes which is connected with a nearby practice laboratory. Some of the classrooms are equipped with a two-way communications system between student and instructor which makes it possible to determine to what extent the subject matter taught has been assimilated and which also makes it possible to check on knowledge acquired during prior classroom sessions."

Of course, there is a lot of wishful thinking here and that certainly does not describe the teaching facilities of each and every military academy but rather--as is customary in the Soviet Union--a kind of "showplace training facility" operated by the Navy which by the way leads in this field. Overall however we can note that the results are widely disparate and that the differences between the various services and the various military districts are very great.

Use of Television

According to the Soviet view, television should be credited with the greatest didactic possibilities. In recent times, portable videotape systems have come into wide use. Projection systems are also reported to have been developed so as to make it possible to produce color television images synthetically.

According to Soviet information, results are available which tell us that difficult concepts and processes, which are described only verbally, are having trouble penetrating into the individual consciousness and do not provide an incentive for independent, creative thinking. But television supposedly helps clearly demonstrate the justification and exploration of the laws behind a particular process, clarifying the internal moving forces in the particular process, and getting the student involved in finding the truth.

Programmed Instruction

That means teaching or learning processes in which there is no direct participation of teachers. The selection and organization of the particular information items, as well as the learning steps and success controls, are handled by programs. These programs consist of textbooks, card files, loose-leaf collections, tape recordings, films, television cassettes, and discs. The advantages of programmed instruction are based above all on two essential discoveries of learning psychology:

Each subject matter can be broken down into individual learning steps; here, every learning unit contains one information item and a question relating to it. If the student answers correctly, he gets confirmation of that, and the next learning unit can begin.

Every lesson is learned to the optimum extent if it is immediately reinforced by a reward or some other need satisfaction. In practice, the people in the Soviet Union judge the advantages of programmed instruction in a manner similar to the way we do: it is economical, easily useable, and it can be adapted to the individual learning tempo of each student.

The Soviet military press reported on initial difficulties but also on modest partial successes. Obviously, the military command is determined to pursue these new ways--to some extent it is even forced to do so.

Teaching or Learning Machine

These are learning equipment units or automatic teaching equipment units which, on the basis of manual, electrical, or electronic control, perform supervisory and guidance functions involving learning processes with the help of learning programs prepared in advance and which thus permit independent learning without the direct involvement of a teacher. They meet above all three conditions:

They offer students information and they require them to cooperate by answering the questions;

They take care of direct confirmation or correction of answers and

They enable their students, for example, to adjust their work tempo according to their ideas.

In the system of programmed instruction, learning machines assume a central position. Their effectiveness naturally depends on the modern aspects of the design as well as on the quality of the program input. They must have the following components:

An output part from which the student gets the explanatory text;

A receiving part, via which the student feeds his answer into the machine;

A device which compares the student's answer with the correct solution;

A recording unit which stores the mistakes and revises the program;

A feedback device in which the student is informed as to his performance;

A selection device which selects the next portion of the subject matter;

A timer which determines the time for the answer and

An information storage unit.

In the Soviet view, the use of learning machines is most practical especially in the technical field and wherever a large number of students must be trained.

There is one quality of learning machines which seems to fascinate the Soviet military command in particular: the optimum control possibility. In the past, the instructor was able to make mistakes which neither he nor the student was able to spot. Checking on people by people is very difficult during the performance of uniform activities over a longer period of time and especially toward the end of a period of work because general fatigue sets in. The machine of course does not develop fatigue; it always works equally well.

That is precisely what the Soviet command has in mind. But there is doubt as to whether many students have that in mind. In that country, much depends on how many little and tiny advantages one can "finagle" for oneself. And that unfortunately cannot be done in the case of machines. But one cannot deny that the learning machine is stricter, confronts the students with higher requirements, but is also more objective than the best teacher.

Simulators

Simulators are practice equipment units which solve physical or technical processes through replication without danger and at low cost.

They have been introduced in the Soviet armed forces roughly since the beginning of the seventies. Here again the Soviets at first exclusively and later on extensively

followed the American models and experiences. Here again, the various services revealed a differing degree of intensity. After the strategic rocket units, the air forces, the naval forces, and the air defense forces, the ground forces were only left with "last place"; but that is clearly in the nature of that particular service. Naturally, the ground forces do not require these technical equipment units to the extent that the other, by far more intensively technological services do.

Soviet lessons learned in this field, such as they have become known so far, are mostly positive. That applies especially to the air and naval forces. In the following we want to describe the problems involved in training and thus the need for the introduction of simulators among the air forces as an example for all of the services.

The overall activities of the aircraft commander can be broken down into three successive and more frequently repeated elements:

The absorption of various information items supplied by the instruments, the signal systems, the instrument panels, the communications equipment, and the outside world.

The thinking process on whose basis the necessary information items are selected and processed and through which methods are determined for acting upon the aircraft and weapons control systems.

The direct activation of control systems in keeping with constantly changing flight conditions.

The main problem in pilot training is the question as to when the instructor pilot lets the trainee solo. He must be able to judge the extent to which the future pilot is in a position at the right time and to the full extent to absorb the necessary information and precisely to perform the manual operations necessary to fly the aircraft. Here it is very difficult for the instructor pilot to judge how great the physical and above all psychological stresses on the trainee were in order to attain the result of the control flight. Possibly the student was able just barely to do his job by giving his utmost in terms of psychological and physiological possibilities, that is to say, under such stress that every unexpected complication in flight could lead to an alertness failure and thus to wrong decisions. But it is especially the mastery of such situations that distinguishes the real pilot. All these however are things which every pilot can learn without risk and at low cost in the flight simulator.

Resistance which obviously prevented the use of these simulators years ago in the meantime has vanished completely. Similar lessons have also been learned in the other services.

Shortcomings and Criticism

It is no wonder that, where absolutely new ways must be explored, shortcomings will arise, resistance has to be overcome, and voices of criticism will be raised. Here are some examples.

Even experienced instructors are inclined to observe that simulators help develop not only positive but also negative qualities,

It is often said that the simulator can hardly be used ever in training,

It happens that instructors are assigned who have never flown the particular aircraft before.

Modern simulators are a good thing but only the very fewest of them are really modern.

Not every officer is convinced as to the quality of television, training films, and new methods; it is especially the older officers who are so very much convinced as to the effectiveness of their old methods that they cannot really learn any new tricks.

"Let us ask ourselves whether we are doing everything to keep up with the times? We unfortunately also have some things that downgrade the role of the creative art of the commanders in modern combat by assigning to it a very low valence or perhaps grading it with a zero."

Experts in this modern training method maintain too little contact with the units.

There are also personnel problems. It has thus been criticized that the best officers and NCOs are not being selected for this type of modern training.

This list could be considerably increased; but the tendency among critical voices is clearly recognizable here.

Evaluation and Conclusions

Unit Command Automation

Although it is undoubtedly difficult and also problematical from the analysis of openly available Soviet military press reports to draw any conclusions as to the value and level of automated unit command, it is nevertheless possible to get a general picture as to the problems and difficulties and perhaps also successes. In spite of the inclination of the Soviets to shut the rest of the world out, they must allow an open discussion on their problems in the military press.

It took a long time after World War II before the Soviet experts were able to address themselves to the possibilities and limitations of unit command automation. First of all there was not enough know how and industry in this field was not very capable. This is why it also seems to make very much good sense for the ground forces to let the other services get ahead in this field. The decisive, trend-setting directives for the crash program in the establishment of EDP systems came from the 24th Party Congress in 1971. It assigned the following tasks to science and industry among others;

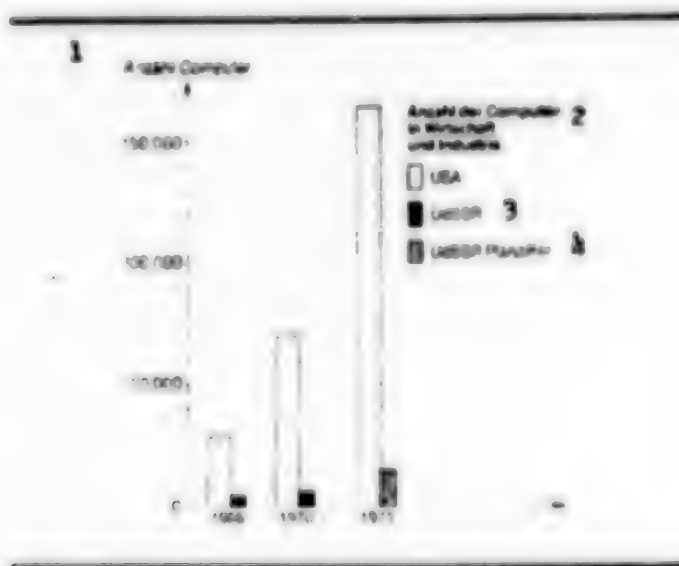
Introduction of computer technology on a broad basis,

Construction of new electronic computer systems with integrated circuits,

Start of preparatory work on general national automated system for collection and analysis of information on the basis of the system's organizational, methodological, and technical uniformity.

In some respects, that marks a complete beginning or a new start. But what does the situation look like in reality? Two German experts, Professor Bohnet and Dr Penkaitis, report on this: "Of general importance finally is the situation in the technical-material sector which can be roughly characterized by the number of computers, their qualitative characteristics, and the years they were introduced, the peripheral units, the development of software, supply with skilled operating personnel, and finally the resorption of the new possibilities of computer technology in science and society. If we compare the situation in the Soviet Union with the conditions in western Europe's and North America's developed national economies, then there is a definite technological gap in the Soviet Union which cannot possibly be mistaken."

From other western information sources we can tell that, regarding the state of the art, but above all concerning the number and modern design of computers, the Soviet Union is far behind western Europe and certainly even further behind the United States. The following graph shows the production of computers in the United States and the Soviet Union. To be sure, it is not "brand-new" but it clearly shows the trends in 1966-1975 and is thus also suitable as basis for the current situation.



Key: 1--number of computers; 2--number of computers in economy and industry; 3--USSR; 4--USSR planned target.

There is the impression that the question--as to what possibilities are available for unit command automation in the Soviet ground forces and where the limitations

are, that is, the limitations beyond which man will always be superior to any electronic system--was not really asked until during the last several years. Thus the Soviets today likewise obviously realize clearly that the thinking process involved in preparing a situation estimate and making the decision will always be reserved to the superiority of the thinking individual. But that does not rule out the possibility that the Soviets will certainly automate some areas of unit command where this is technically possible and not too complicated. Some things have already been done especially in the G-4 area. That is demanded by the size of the country and the personnel and equipment strength of the armed forces to begin with.

Modernization of Training

The Soviet efforts to modernize armed forces training began with a study of the United States technical and military press. One officer, after visiting the United States, quite obviously complained that "the Americans showed us the methods but not the technical equipment."

It was therefore important to use the new possibilities in order to get through certain "childhood diseases." The spirit with which this effort was tackled did vary. It is not astonishing that the more technological services, such as the Navy and the Air Force, as we said before, were and are ahead of the ground forces in this respect. For example, they need simulators far more urgently than the more conventional ground forces. Nothing has changed here to this very day.

There is also the impression that the top command is more enthused about modern training than the lieutenant or enlisted man. The learning machines are tougher for them than their instructors all of whom have their weaknesses and in dealing with whom one can "cheat" a little bit--something which the sober machines of course do not allow. The Soviet military command is undeterred in its efforts to make progressive ideas palatable to their commanders. It advocates the view that we live in an age of constantly "having to learn" and that "we must allow all commanders and party organizations to develop an atmosphere of intolerance toward any kind of stagnation, inertia, and stereotyped approach."

But there is also some restriction introduced by the Soviet command here: "Indeed, technical resources can never replace the real conditions represented by the weather, the terrain, night-time missions, as well as physical and psychological stress. Past experience has proved that, in spite of all advantages, in spite of the suitability and great effectiveness of equipment in the training process, one must under no circumstances neglect the care and promotion of training methods and the elevation of the methodological skills of the instructors."

In other words, not very much will change at excessive speed.

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